

(60)

Access DB# 85474

# **SEARCH REQUEST FORM** **Scientific and Technical Information Center**

Requester's Full Name: Jennifer Horie Examiner #: 76066 Date: 1/25/99  
 Art Unit: 3623 Phone Number 306-2962 Serial Number: 691413072  
 Mail Box and Bldg/Room Location: 7011 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**  
 \*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: System for control for handling goods, especially in a  
Critical Care Services from Remote Locations  
 Inventors (please provide full names): David A. Ferguson et al  
Assignee: ICUSA

Earliest Priority Filing Date: 11/18/98

**\*For Sequence Searches Only\*** Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Search claims 13 + 25.  
 The gist of this invention is monitoring, the automating of the monitoring,  
 more than one ICU from a remote location,  
 evidence-driven data feed back video monitors that can be located & zoomed  
 to get specific views of patients  
 research also on a data network for data warehousing  
 relational database, database w/ decision support + algorithms  
 examples include claim 20.  
 knowledge based / AI vital sign + hemodynamic algorithms.

\*\*\*\*\*

**STAFF USE ONLY**

Searcher: <u>David P. Kelly</u>	Type of Search	Vendors and cost where applicable
Searcher Phone #: <u>365-5774</u>	NA Sequence (#) _____	STN _____
Searcher Location: <u>EIC 3600</u>	AA Sequence (#) _____	Dialog <u># 1266 16</u>
Date Searcher Picked Up: <u>1-26-2003</u>	Structure (#) _____	Questel/Orbit _____
Date Completed: <u>1-31-2003</u>	Bibliographic <input checked="" type="checkbox"/>	Dr. Link _____
Searcher Prep & Review Time: <u>136</u>	Litigation _____	Lexis/Nexis _____
Clerical Prep Time: _____	Fulltext _____	Sequence Systems _____
Online Time: <u>250</u>	Patent Family _____	WWW/Internet _____
	Other _____	Other (specify) _____

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?show files;ds

File 154:MEDLINE(R) 1990-2003/Jan W4

File 155:MEDLINE(R) 1966-2003/Jan W4

Set	Items	Description
S1	8240	TELEMEDICINE? OR TELE()MEDICINE? OR TELEMATIC? OR TELEMATI-
	C?	
S2	83993	ICU? OR EICU OR E()ICU OR INTENSIVE()CARE?
S3	67864	FEEDBACK? OR FEED()BACK? OR BIOFEEDBACK? OR BIO()FEEDBACK?
S4	0	S1 AND S2 AND S3
S5	82	S1 AND S3
S6	36	S5 NOT PY>1999
S7	19	RD (unique items)
S8	121	S1 AND S2
S9	53	S8 NOT PY>1999
S10	27	RD (unique items)
S11	27	S10 NOT S7
S12	3819207	PATIENT? ? OR (SICK OR BEDRIDDEN OR COMA OR BRAIN()DEAD OR HOSPICE OR ILL) (3N) (INDIVIDUAL? ? OR PERSON? ? OR PEOPLE? ?) - OR CRITICALLY(2W)ILL OR ICU OR INTENSIVE(2W)CARE OR CRITICAL(- 2W)CARE OR EICU OR E()ICU
S13	398	S1(8N) (MONITOR? OR WATCH? OR OBSERV? OR VIEW? OR SEEING OR SEEN OR VISUAL? OR TELEMONITOR? OR TELEMONITOR?)
S14	102868	VIDEO? OR CAMERA? OR TV OR TELEVISION? OR VIEWER? OR TELEM- EDICINE OR TELE()MEDICINE OR TELEMATIC? OR TELE()MATIC? OR ON- ()SCREEN?
S15	20669	STEER? OR ZOOM? OR CLOSEUP? OR CLOSE()UP OR CLOSER()LOOK OR (SPECIFIC OR CHANG?) (2W) (VIEW? OR POSITION? OR ANGLE? OR DIM- ENSION? ?)
S16	211774	VITAL()SIGN? ? OR FEEDBACK? OR FEED()BACK? OR (GATHER? OR - OBTAIN? OR READ?) (3N) (DATA OR INFORMATION OR BLOOD()PRESSURE? OR HEART()RATE? OR BREATH?)
S17	680880	NETWORK? OR DATA()BASE? OR DATABASE? OR WAREHOUSE? OR KNOW- LEDGEBASE? OR KNOWLEDGE()BASE? OR AI OR ARTIFICIAL()INTELLIGE- NCE? OR SERVER? OR NEURAL()NET? OR EXPERT()SYSTEM? OR RDBMS OR RDB OR ORACLE OR RELATIONAL OR DSS OR DECISION()SUPPORT?
S18	276183	ALGORITHM? OR HEMODYNAMIC?
S19	616245	INTENSIVIST? OR DOCTOR? ? OR EXPERT OR PHYSICIAN? ? OR NUR- SE? ? OR MEDICAL() (PROFESSIONAL? ? OR STAFF OR STUDENT? ?)
S20	3	S10(8N) (COMMAND() (CENTRE? OR CENTER?) OR REMOTE? OR AFAR? - OR (ANOTHER OR DISTANT OR FARAWAY OR OTHER OR "NOT()IN()THE()- SAME") (2W) (ROOM OR LOCATION OR FACILITY OR BUILDING OR SITE? - ?))
S21	74	S2(8N) (COMMAND() (CENTRE? OR CENTER?) OR REMOTE? OR AFAR? OR (ANOTHER OR DISTANT OR FARAWAY OR OTHER OR "NOT()IN()THE()SA- ME") (2W) (ROOM OR LOCATION OR FACILITY OR BUILDING OR SITE? ?))
S22	78	S2(10N) (CENTRALIZ? OR CENTRALIS? OR COMMAND() (CENTER? OR C- ENTRE?) OR OBSERVATION()ROOM)
S23	348720	S12(8N) (MONITOR? OR WATCH? OR OBSERV? OR VIEW? OR SEEING OR SEEN OR VISUAL? OR TELEMONITOR?)
S24	20619	(S21 OR S22 OR S23 OR S20 OR S13) AND (S17 OR S18)
S25	214	S24 AND S1/TI,DE,DD,TT
S26	4	S2 AND S25
S27	2	RD (unique items)
S28	7295	S1/TI,DE,DD,TT
S29	533788	S17/TI,DD,DE,TT
S30	1555	S28 AND S29
S31	1151	S30 NOT PY>1999
S32	302	S12 AND S31
S33	152	RD (unique items)
S34	6	S2 AND S33
S35	12	S2 AND S31

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S36	12	S34 OR S35
S37	6	RD (unique items)
?		

?t37/3,k/all

**37/3,K/1 (Item 1 from file: 154)**  
DIALOG(R) File 154:MEDLINE(R)

10139632 99123145 PMID: 9929240

**Baby CareLink: development and implementation of a WWW-based system for neonatal home telemedicine .**

Gray J; Pompilio-Weitzner G; Jones P C; Wang Q; Coriat M; Safran C  
Center for Clinical Computing, Beth Israel Deaconess Medical Center,  
Harvard Medical School, Boston, Massachusetts, USA.

Proceedings / AMIA ... Annual Symposium. AMIA Symposium (UNITED STATES)  
1998, p351-5, ISSN 1531-605X Journal Code: 100883449

Contract/Grant No.: N01-LM-6-3535; LM; NLM

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**Baby CareLink: development and implementation of a WWW-based system for neonatal home telemedicine .**

Descriptors: Home Nursing; \*Infant, Very Low Birth Weight; \*Internet;  
\*Software; \* **Telemedicine** ; Computer Security; Computer Systems;  
Confidentiality; **Database** Management Systems; Evaluation Studies; Health  
Education; Infant, Newborn; **Intensive Care** Units, Neonatal

**37/3,K/2 (Item 2 from file: 154)**  
DIALOG(R) File 154:MEDLINE(R)

10000205 98419766 PMID: 10182722

**The wired health system: telemedicine comes of age.**

Health care cost reengineering report (UNITED STATES) Aug 1998, 3 (8)  
p121-3, ISSN 1088-4653 Journal Code: 9707732

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**The wired health system: telemedicine comes of age.**

...system in Kansas, nurse practitioners are able to see up to four times  
as many **patients** as is possible with in-person home care visits. And at  
Boston's Beth Israel...

... that works over the Internet, avoiding the \$2,000 per day cost of the  
neonatal **ICU** .

Descriptors: Delivery of Health Care--trends--TD; \* **Telemedicine** --trends  
--TD; Computer Communication **Networks** ; Cost-Benefit Analysis; Home Care  
Services--organization and administration--OG; Insurance, Health,  
Reimbursement; **Telemedicine** --economics--EC; United States

**37/3,K/3 (Item 3 from file: 154)**  
DIALOG(R) File 154:MEDLINE(R)

09970907 98404793 PMID: 10182372

**Communications special need profiles.**

Wheeler T

Telemedicine today (UNITED STATES) Aug 1998, 6 (4) p21, ISSN

1078-0351 Journal Code: 9505215

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM  
Record type: Completed

Descriptors: Child, Hospitalized; \*Computer Communication **Networks** ; \*  
**Telemedicine** ; Child; Infant; Infant Care; Infant, Newborn; **Intensive**  
**Care** , Neonatal; Interpersonal Relations

37/3,K/4 (Item 4 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09220872 97115029 PMID: 10163710

**Telematics and protocols of care in critical care environments.**  
Wilson A J; Bowes C L; Holland J  
IBEES, Lodge Moor Hospital, University of Sheffield, UK.  
Studies in health technology and informatics (NETHERLANDS) 1995, 16  
p157-66, ISSN 0926-9630 Journal Code: 9214582  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**Telematics and protocols of care in critical care environments.**  
The paper discusses the potential roles for protocols of care within  
**critical care** environments from the perspective of providing real-time  
support for their application. The discussion is based around a conceptual  
model of care in **critical care** environments. This model has been  
developed in the wider context of developing information technology systems,  
to support clinical care in **critical care** environments. The conceptual  
model of care is a three layer model which demonstrates both the  
hierarchical and temporal aspects of the care delivered to **patients** . It  
is proposed that if the value of protocols of care is to be realised in  
**critical care** environments then they must be seamlessly integrated into  
the routine data management associated with the care of **patients** . In  
order to demonstrate this and to evaluate the utility of this concept in  
the...

... been used as prototype platforms. The application of the concepts  
developed are described in two **critical care** environments: the  
anaesthesia department and the **intensive care** unit. Problems in using  
protocols of care in **intensive care** units suggest that integrating  
these with a problem solving methodology to create an integrated care plan  
may be a more appropriate approach to **patient** management.

Descriptors: **Critical Care** ; \* **Decision Support** Techniques;  
\*Medical Informatics Applications; \*Practice Guidelines; Anesthesia  
Department, Hospital; Computer Systems; Medical Records Systems,  
Computerized; **Patient** Care Planning; **Patient** Care Team

37/3,K/5 (Item 5 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08783898 96123793 PMID: 8563356

**A client/ server system for remote diagnosis of cardiac arrhythmias.**  
Tong D A; Gajjala V; Widman L E  
Department of Medicine, University of Oklahoma Health Sciences Center,  
Oklahoma City, USA.  
Proceedings / the ... Annual Symposium on Computer Application sic in  
Medical Care. Symposium on Computer Applications in Medical Care (UNITED  
STATES) 1995, p601-5, ISSN 0195-4210 Journal Code: 8113685  
Contract/Grant No.: R01 LM05530; LM; NLM  
Document type: Journal Article

Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**A client/ server system for remote diagnosis of cardiac arrhythmias.**  
... rhythms from electrocardiograms (ECGs) produced by 12-lead ECG machines, ambulatory (Holter) monitoring systems, and **intensive - care** unit monitors. Usually, the practitioner caring for the **patient** does not have specialized training in cardiology or in ECG interpretation; and commercial programs that...

Descriptors: Arrhythmia--diagnosis--DI; \*Computer Systems; \*Electrocardiography; \* **Telemedicine** ; **Artificial Intelligence** ; Computer Communication **Networks** ; Microcomputers; Remote Consultation; Software

**37/3,K/6 (Item 6 from file: 154)**  
DIALOG(R) File 154:MEDLINE(R)

08435046 95196468 PMID: 7889753

**TANIT AIM project (A2036): Telematics for ANaesthesia and Intensive Therapy.**

Bowes C L; Holland J  
Kontron Instruments Ltd., Croxley Business Park, Watford, Herts, UK.  
Computer methods and programs in biomedicine (IRELAND) Oct 1994, 45  
(1-2) p159-64, ISSN 0169-2607 Journal Code: 8506513  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**TANIT AIM project (A2036): Telematics for ANaesthesia and Intensive Therapy.**

On-going work relating to the development of advanced telematics systems for **Critical Care** environments is described. This work is in part sponsored by the Commission of European Communities...

... the AIM TANIT project. Two example departments have been selected for piloting in the project: **Intensive Care** and Anaesthesia. The objective of this paper is to outline the complex issues that need...

Descriptors: Anesthesia Department, Hospital; \*Computer Communication **Networks** ; \*Hospital Information Systems; \* **Intensive Care** Units...; administration--OG; Computer Security; Confidentiality; Data Collection --standards--ST; Europe; Hospital Information Systems--standards--ST; **Intensive Care** Units--organization and administration--OG; Medical Records Systems, Computerized; Pilot Projects; Systems Integration

?

?t27/3,k/all

27/3,K/1 (Item 1 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

13043232 21911158 PMID: 11913042

Remote control. Specialists are running intensive - care units from remote sites via computers, and at least one health system with the e - ICU is reaping financial rewards--and saving lives.

Becker Cinda  
Modern healthcare (United States) Feb 25 2002, 32 (8) p40-2, 44, 46,  
ISSN 0160-7480 Journal Code: 7801798  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

Remote control. Specialists are running intensive - care units from remote sites via computers, and at least one health system with the e - ICU is reaping financial rewards--and saving lives.

Descriptors: Computer Communication Networks ; \*Computer Communication Networks --organization and administration--OG; \*Critical Care --organization and administration--OG; \* Intensive Care Units --organization and administration--OG; \*Quality Assurance, Health Care --organization and administration--OG; \*Specialties, Medical--organization and administration--OG; \* Telemedicine --organization and administration --OG; \*Telemetry--methods--MT

27/3,K/2 (Item 2 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08783898 96123793 PMID: 8563356

A client/ server system for remote diagnosis of cardiac arrhythmias.  
Tong D A; Gajjala V; Widman L E  
Department of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, USA.  
Proceedings / the ... Annual Symposium on Computer Application sic in Medical Care. Symposium on Computer Applications in Medical Care (UNITED STATES) 1995, p601-5, ISSN 0195-4210 Journal Code: 8113685  
Contract/Grant No.: R01 LM05530; LM; NLM  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

A client/ server system for remote diagnosis of cardiac arrhythmias.  
... interpreting complex heart rhythms from electrocardiograms (ECGs) produced by 12-lead ECG machines, ambulatory (Holter) monitoring systems, and intensive - care unit monitors . Usually, the practitioner caring for the patient does not have specialized training in cardiology or in ECG interpretation; and commercial programs that...  
... be beneficial to the health care system. We hypothesized that we could develop a client- server based telemedicine system capable of providing access to (1) an on-line knowledge - based system for remote diagnosis of cardiac arrhythmias and (2) an on-line cardiologist for real...

... Internet. Furthermore, we hypothesized that Macintosh and Microsoft Windows-based personal computers running an X server could function as the delivery platform for the developed system. Although we were successful in...

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... system that will run efficiently on a UNIX-based work-station, current personal computer X **server** software are not capable of running the system efficiently.

Descriptors: Arrhythmia--diagnosis--DI; \*Computer Systems; \*Electrocardiography; \* **Telemedicine** ; **Artificial Intelligence** ; Computer Communication **Networks** ; Microcomputers; Remote Consultation; Software  
?



?t7/3,k/all

7/3,K/1 (Item 1 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

12850868 21577982 PMID: 11720917  
**Borderless teleradiology with CHILI.**  
Engelmann U; Schroeter A; Schwab M; Eisenmann U; Vetter M; Lorenz K;  
Quiles J; Wolf I; Evers H; Meinzer H P  
Abteilung Medizinische und Biologische Informatik, Deutsches  
Krebsforschungszentrum, Heidelberg, D-69120, Germany. U.Engelmann@DKFZ-Heid  
elberg.de  
J Med Internet Res (United States) Oct-Dec 1999, 1 (2) pE8, ISSN  
1438-8871 Journal Code: 100959882  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

Teleradiology is one of the most evolved areas of **telemedicine**, but one  
of the basic problems which remains unsolved concerns system compatibility.  
The DICOM (Digital...

...300,000 images have been distributed among the communication partners in  
the last two years. **Feedback** and suggestions from the users influenced  
the system architecture by a great extent. The proposed...

7/3,K/2 (Item 2 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10634111 20184433 PMID: 10719519  
**The implementation of a quality-net as a part of the European project  
DIABCARE Q-Net.**  
Gerlach K; Kaeding A; Kottmair S; Westphal D; Henning G; Piwernetz K  
Institute of Biomedical Engineering and Informatics, Technical University  
of Ilmenau, Germany. kge@informatik.tu-ilmenau.de  
IEEE transactions on information technology in biomedicine : a  
publication of the IEEE Engineering in Medicine and Biology Society (UNITED  
STATES) Jun 1998, 2 (2) p98-104, ISSN 1089-7771 Journal Code:  
9712259  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

...research, which has the overall target of improvement in diabetes care  
by aggregation, evaluation, and **feedback** of anonymized patient data with  
the tools of modern **telematics**, resulting from the initiative of the St.  
Vincent-Declaration, St. Vincent, Italy. Based on standardized...

... diabetes care, i.e., the Basic Information Sheet (BIS) and recently  
developed data entry and **feedback** software (DIABCARE Data for Windows),  
DIABCARE Q-Net as a part of the **Telematics** Applications Program of the  
European Commission will improve diabetes care and disease management by  
the...

... processing of diabetes quality indicators. All participating centers  
(GP's and clinics in Europe) get **feedback** by standardized benchmarking.  
The pilot testing and the state of implementation of our network confirm...

7/3,K/3 (Item 3 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10330989 99308022 PMID: 10538369  
**PC-based telerehabilitation system with force feedback .**  
Popescu V; Burdea G; Bouzit M; Girone M; Hentz V  
ECE Department, Rutgers University, Piscataway, N.J. 08854, USA.  
Studies in health technology and informatics (NETHERLANDS) 1999, 62  
p261-7, ISSN 0926-9630 Journal Code: 9214582  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**PC-based telerehabilitation system with force feedback .**  
Descriptors: Exercise Therapy--methods--MT; \*Hand Injuries  
--rehabilitation--RH; \*Microcomputers; \* **Telemedicine** --instrumentation--IS  
; \*Therapy, Computer-Assisted; \*User-Computer Interface

7/3,K/4 (Item 4 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10330970 99308005 PMID: 10538350  
**Telepresence surgery system enhances medical student surgery training.**  
Kaufmann C; Rhee P; Burris D  
Department of Surgery, Uniformed Services University of the Health  
Sciences, Bethesda, MD 20814, USA. ckaufmann@idsonline.com  
Studies in health technology and informatics (NETHERLANDS) 1999, 62  
p174-8, ISSN 0926-9630 Journal Code: 9214582  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

... achieved through real-time 3D video vision, stereo audio, and remote  
instrument control with haptic **feedback** . Telepresence surgery has been  
proposed to be useful in providing specialist operative consultation to  
remote...

Descriptors: Computer-Assisted Instruction; \*Education, Medical,  
Undergraduate--methods--MT; \*Surgery--education--ED; \* **Telemedicine** ;  
\*User-Computer Interface

7/3,K/5 (Item 5 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10319109 99312454 PMID: 10384460  
**Telematic system for monitoring of asthma severity in patients' homes.**  
Finkelstein J; Hripcsak G; Cabrera M  
Department of Medical Informatics, Columbia University, New York, USA.  
finkelj@cucis.cis.columbia.edu  
Medinfo (CANADA) 1998, 9 Pt 1 p272-6, ISSN 1569-6332  
Journal Code: 7600347  
Contract/Grant No.: R29-LM05627; LM; NLM  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**Telematic system for monitoring of asthma severity in patients' homes.**  
... decision support tools. The goal of this study is to develop and to

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evaluate a **telematic** system for asthma severity monitoring which will minimize patients' efforts in performing self-testing at...

... corresponding messages for the patient and, if necessary, for physicians. Such an approach provides constant **feedback** loop between asthma patient and physician. The system has been tested in 10 healthy volunteers...

Descriptors: Asthma--classification--CL; \*Home Care Services, Hospital-Based; \*Spirometry; \* **Telemedicine** ...; diagnosis--DI; Asthma --physiopathology--PP; Internet; Microcomputers; Severity of Illness Index; Spirometry--instrumentation--IS; Telecommunications; **Telemedicine** --instrumentation--IS; Vital Capacity

7/3,K/6 (Item 6 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10016594 99008459 PMID: 9794328

Using the Vista 350 telephone to communicate the results of home monitoring of diabetes mellitus to a central database and to provide feedback.

Edmonds M; Bauer M; Osborn S; Lutfiyya H; Mahon J; Doig G; Grundy P; Gittens C; Molenkamp G; Fenlon D

Department of Medicine, Faculty of Medicine, University of Western Ontario, Canada. medmonds@julian.uwo.ca

International journal of medical informatics (IRELAND) Aug-Sep 1998, 51 (2-3) p117-25, ISSN 1386-5056 Journal Code: 9711057

Document type: Clinical Trial; Journal Article; Randomized Controlled Trial

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

... the results of home monitoring of diabetes mellitus to a central database and to provide feedback.

... enables patients with diabetes to record home monitoring data to a central database and receive **feedback** summaries. A small trial was conducted to determine if the Vista 350 telephone is an...

... communicate the results of home monitoring of diabetes mellitus to a central database and receive **feedback** summaries. A total of 35 volunteers with insulin-requiring diabetes mellitus in the London area...

Descriptors: Blood Glucose Self-Monitoring--methods--MT; \*Diabetes Mellitus--therapy--TH; \* **Telemedicine** ; \*Telephone

7/3,K/7 (Item 7 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09864498 98304927 PMID: 9640745

Telemedicine applications in otolaryngology.

Stern J; Heneghan C; Sciafani A P; Ginsburg J; Sabini P; Dolitsky J N

Department of Otolaryngology, New York Eye and Ear Infirmary, USA.

Journal of telemedicine and telecare (ENGLAND) 1998, 4 Suppl 1 p74-5, ISSN 1357-633X Journal Code: 9506702

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Telemedicine applications in otolaryngology.

... examinations. However, since store-and-forward consultations include less information and do not provide immediate **feedback**, as well defined

clinical protocol for assembling the electronic consultation is needed.

7/3,K/8 (Item 8 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09853522 98293935 PMID: 9632146

**Use of an intuitive telemanipulator system for remote trauma surgery: an experimental study.**

Bowersox J C; Cordts P R; LaPorta A J  
Department of Surgery, Stanford University School of Medicine, CA, USA.  
Journal of the American College of Surgeons (UNITED STATES) Jun 1998,  
186 (6) p615-21, ISSN 1072-7515 Journal Code: 9431305  
Comment in J Am Coll Surg. 1998 Jun;186(6) 691-2; Comment in PMID 9632159  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

... hemorrhage control from liver lacerations, and enterotomy closures were successfully completed in all attempts. Force **feedback** and stereoscopic video display were important for achieving intuitive performance with the telesurgery system, although...

Descriptors: Robotics; \*Surgical Equipment; \*Surgical Instruments; \*  
**Telemedicine** --instrumentation--IS; \*Wounds and Injuries--surgery--SU

7/3,K/9 (Item 9 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09781487 98214739 PMID: 9554121

**[A new concept in digestive surgery: the computer assisted surgical procedure, from virtual reality to telemanipulation]**

Un nouveau concept en chirurgie digestive: la procedure chirurgicale assistee par ordinateur, de la realite virtuelle a la telemanipulation.

Marescaux J; Clement J M; Nord M; Russier Y; Tasseti V; Mutter D; Cotin S; Ayache N

Service de Chirurgie Digestive et Endocrinienne/IRCAD-EITS, Hopitaux Universitaires de Strasbourg.

Bulletin de l'Academie nationale de medecine (FRANCE) Nov 1997, 181 (8) p1609-21; discussion 1622-3, ISSN 0001-4079 Journal Code: 7503383

Document type: Journal Article; Review; Review, Tutorial; English  
Abstract

Languages: FRENCH

Main Citation Owner: NLM

Record type: Completed

... a tumor and the consequent planning and virtual resection is also described, as are force **feedback** and real-time interaction.

Descriptors: Computer Simulation; \*Digestive System Surgical Procedures;  
\* **Telemedicine** ; \*User-Computer Interface

7/3,K/10 (Item 10 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09491018 97384238 PMID: 10168947

**Blind persons navigate in virtual reality (VR); hearing and feeling communicates "reality".**

Max M L; Gonzalez J R  
Studies in health technology and informatics (NETHERLANDS) 1997, 39 p54-9, ISSN 0926-9630 Journal Code: 9214582

Search Report from Ginger D. Roberts

Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

... Wide Web, and makes them navigable by "feeling" the terrain using haptic (tactual or force **feedback** to your hand) robotic interfaces. Ultimately, these multi-sensory VR access methods: sight, localization by ...

... applications on the World Wide Web. This work is part of government technology transfer to **telemedicine**, (elementary) education, disabilities access to the Web, and new Internet access and productivity efforts under ...

7/3,K/11 (Item 11 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09311496 97233233 PMID: 9079422

**Virtual reality, telesurgery, and the new world order of medicine.**

Satava R M

Walter Reed Army Medical Center, Washington, DC, USA.

Journal of image guided surgery (UNITED STATES) 1995, 1 (1) p12-6,  
ISSN 1078-7844 Journal Code: 9508564

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

... sensory input. At the workstation are a 3-D monitor and dexterous handles with force **feedback**. The next generation in medical education can learn anatomy from a new perspective by "flying..."

Descriptors: Computer Simulation; \*Surgical Procedures, Operative; \*  
**Telemedicine**

7/3,K/12 (Item 12 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09220937 97115120 PMID: 10163765

**Complex task performance in Cyberspace. Surgical procedures in a telepresence environment.**

Bowersox J C; LaPorta A J; Cordts P R; Bhoyrul S; Shah A  
SRI International, Menlo Park, CA 94025, USA.

Studies in health technology and informatics (NETHERLANDS) 1996, 29  
p320-6, ISSN 0926-9630 Journal Code: 9214582

Contract/Grant No.: GM 44902; GM; NIGMS

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

... the four degrees of freedom available in the manipulators of the current-generation system. Force **feedback** and high-resolution, stereoscopic video input facilitated performance. Surgeons operating through a first-generation telepresence...

Descriptors: Cybernetics--instrumentation--IS; \*Image Processing,  
Computer-Assisted--instrumentation--IS; \*Robotics; \*Surgical Equipment; \*  
**Telemedicine** --instrumentation--IS; \*User-Computer Interface

7/3,K/13 (Item 13 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08877090 96230983 PMID: 8646837

**A telemedicine system for remote cooperative medical imaging diagnosis.**  
Gomez E J; del Pozo F; Quiles J A; Arredondo M T; Rahms H; Sanz M; Cano P  
Grupo de Bioingenieria y Telemedicina (GBT) E.T.S.I. Telecomunicacion,  
Universidad Politecnica de Madrid, Spain.

Computer methods and programs in biomedicine (IRELAND) Jan 1996, 49  
(1) p37-48, ISSN 0169-2607 Journal Code: 8506513  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**A telemedicine system for remote cooperative medical imaging diagnosis.**  
**Telemedicine** is changing the classical form of health care delivery, by  
providing efficient solutions to an...

... professionals located in different clinical sites. This paper presents  
the design and development of a **telemedicine** system for remote  
computer-supported cooperative medical imaging diagnosis. The main and  
novel component of...

... existing CSCW products, mainly based on centralized architectures, our  
distributed toolkit is specially designed for **telemedicine** applications:  
to allow different levels of sharing between participants, to improve user  
**feedback** in highly interactive user interfaces, and to optimize the  
required communication bandwidth in order to implement a **telemedicine**  
CSCW application on almost any telecommunication network. This  
**telemedicine** CSCW system has been applied to build a cooperative medical  
imaging diagnosis application, in which...

... using cardiac angiography images. The design of the graphical user  
interface for this kind of **telemedicine** CSCW systems, a critical  
component which conforms any **telemedicine** application, is also addressed  
with a new methodological approach, to assure the system usability and  
final user acceptance. The **telemedicine** cardiac angiography pilot has  
been implemented, tested and evaluated within the Research Project  
'FEST-Framework for European Services in **Telemedicine** ' funded by EU AIM  
Programme.

7/3,K/14 (Item 14 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08804753 96164454 PMID: 8574765

**Medicine in virtual environments.**

Dumay A C  
TNO Physics and Electronics Laboratory, The Hague, The Netherlands.  
dumay@fel.tno.nl

Technology and health care : official journal of the European Society for  
Engineering and Medicine (NETHERLANDS) Oct 1995, 3 (2) p75-89, ISSN  
0928-7329 Journal Code: 9314590

Document type: Journal Article; Review; Review, Tutorial  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

... field of medicine. These applications can be found in  
education/training, therapy, surgery, rehabilitation, diagnosis,  
**telemedicine** and biomechanics. The value to be added to these  
applications by VE technology lies in...

... realism for medical applications. Secondly, there are no commercially-available actuators for tactile and force **feedback** which the physician desperately need for the simulation of the contact with the (virtual) patient...

; Diagnosis, Computer-Assisted; Education, Medical; Feasibility Studies; **Feedback** ; Technology Assessment, Biomedical; **Telemedicine**

7/3,K/15 (Item 15 from file: 154)

DIALOG(R) File 154:MEDLINE(R)

08613844 95370711 PMID: 7643023

**Medical applications of virtual reality.**

Satava R M

Walter Reed Army Medical Center, Washington, DC 20307, USA.

Journal of medical systems (UNITED STATES) Jun 1995, 19 (3) p275-80,

ISSN 0148-5598 Journal Code: 7806056

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

...input. At the workstation there is a 3-D monitor and dexterous handles with force **feedback** . The VR surgical simulator is a stylized recreation of the human abdomen with several essential...

Descriptors: Computer Simulation; \*Decision Making, Computer-Assisted; \***Telemedicine**

7/3,K/16 (Item 16 from file: 154)

DIALOG(R) File 154:MEDLINE(R)

08477069 95232253 PMID: 7716294

**[Diagnostic image management and communication systems: experience at the University of Pisa]**

Sistemi per la gestione e la comunicazione delle immagini diagnostiche: l'esperienza dell'Universita di Pisa.

Caramella D; Del Sarto M; Bartolozzi C; Beltrame F; Sobel I

Cattedra di Radiologia, Universita di Pisa.

La Radiologia medica (ITALY) Jan-Feb 1995, 89 (1-2) p136-42, ISSN 0033-8362 Journal Code: 0177625

Document type: Journal Article ; English Abstract

Languages: ITALIAN

Main Citation Owner: NLM

Record type: Completed

...often limited by the complexity of image transfer and by the lack of a timely **feed - back** concerning the clinical value of processed images. Advanced processing of diagnostic images was performed in...

Descriptors: Computer Communication Networks; \*Image Processing, Computer-Assisted; \***Telemedicine**

7/3,K/17 (Item 17 from file: 154)

DIALOG(R) File 154:MEDLINE(R)

08391352 95145670 PMID: 7843361

**Constitution and monitoring of an epidemiological surveillance network with sentinel general practitioners.**

Chauvin P

Unite de Recherches Biomathematiques, Paris, France.

European journal of epidemiology (NETHERLANDS) Aug 1994, 10 (4)  
p477-9, ISSN 0393-2990 Journal Code: 8508062  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

...in the RNTMT, representing a total of more than 120,000 connections to the RNTMT **telematic** service center. The principal motivation of these benevolent SGPs was to 'actively participate in public...

... in order to quantitatively and qualitatively follow their participation and to provide regular and useful **feedback** to the surveillance actors.  
; Attitude of Health Personnel; Disease Notification; **Feedback** ; France  
--epidemiology--EP; Motivation; Personnel Selection; Quality Control; Voluntary Workers

7/3,K/18 (Item 1 from file: 155)  
DIALOG(R) File 155:MEDLINE(R)

06503770 90199187 PMID: 2107932

**Telematics : a new tool for epidemiological surveillance of diarrhoeal diseases in the Aquitaine sentinel network.**

Maurice S; Megraud F; Vivares C; Dabis F; Toulouse C; Tilly B; Salamon R  
Universite de Bordeaux II, INSERM U330, France.  
BMJ (Clinical research ed.) (ENGLAND) Feb 24 1990, 300 (6723) p514-6  
ISSN 0959-8138 Journal Code: 8900488  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**Telematics : a new tool for epidemiological surveillance of diarrhoeal diseases in the Aquitaine sentinel network.**

A sentinel health information system using **telematics** and a network of general practitioners was set up in Aquitaine in south western France...

... and in families (22.3%). The advantages of this system were easy reporting and immediate **feedback**, but it was difficult to extrapolate the data, and the system was inadequate for intervening...

7/3,K/19 (Item 2 from file: 155)  
DIALOG(R) File 155:MEDLINE(R)

06483397 90157690 PMID: 2622292

**Telematics and sentinel health information system with general practitioners in Aquitaine, southwest France.**

Maurice S; Salamon R; Dabis F  
Departement d'Informatique Medicale, Universite de Bordeaux 2, France.  
Medical informatics = Medecine et informatique (ENGLAND) Oct-Dec 1989,  
14 (4) p281-6, ISSN 0307-7640 Journal Code: 7612096  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**Telematics and sentinel health information system with general practitioners in Aquitaine, southwest France.**

A sentinel health information system using a **telematics** system to collect epidemiological data from a network of general practitioners (GPs)



Search Report from Ginger D. Roberts

making up 5...

... standard telephone lines to a central minicomputer located in the Bordeaux University Medical Centre. Regular **feedback** was provided to the participating GPs, public health officials and the Bordeaux Medical School.

A...

?

?t11/3,k/all

11/3,K/1 (Item 1 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10589814 20098865 PMID: 10632623  
**'Early warning systems' for identifying new healthcare technologies.**  
Robert G; Stevens A; Gabbay J  
Health Economics Research Group, Brunel University, Uxbridge, UK.  
Health technology assessment (Winchester, England) (ENGLAND) 1999, 3  
(13) p1-108, ISSN 1366-5278 Journal Code: 9706284  
Document type: Journal Article; Review; Review, Academic  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

...; drug therapy--DT; Diagnostic Imaging--instrumentation--IS;  
Forecasting; Great Britain; Heart-Assist Devices; Information Services;  
**Intensive Care** Units, Pediatric; Internet; Mass Media; Multiple  
Sclerosis--therapy--TH; Sensitivity and Specificity; **Telemedicine**

11/3,K/2 (Item 2 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10564389 20103640 PMID: 10638285  
**Technology opens new doors for trauma and care.**  
Kennedy M  
WMJ : official publication of the State Medical Society of Wisconsin ( UNITED STATES) Nov 1999, 98 (7) p12-3, 15-8, Journal Code: 9716054  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

Descriptors: **Intensive Care** ; \*Wounds and Injuries--therapy--TH...;  
Stay; Pelvic Bones--injuries--IN; Rural Population; Spinal Injuries  
--diagnosis--DI; Spinal Injuries--therapy--TH; **Telemedicine** ; Trauma  
Centers; Wisconsin; Wounds and Injuries--diagnosis--DI; Wounds and  
Injuries--prevention and control--PC...

11/3,K/3 (Item 3 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10549724 20082680 PMID: 10615818  
**[Influence of intelligence level of the type I diabetic patients handling hi-tech glycemia monitoring system on the effectiveness of intensive insulin treatment]**  
Wplyw poziomu inteligencji pacjentow z cukrzyca typu 1 stosujacych wysokospecjalistyczny system monitorujacy glikemie na wyniki intensywnej insulinoterapii podczas ciazy.  
Krzymien J; Ladyzynski P; Wojcicki J M; Jozwicka E; Blachowicz J; Mikulicz H; Czajkowski K; Janczewska E; Karnafel W  
Katedry i Kliniki Gastroenterologii i Chorob Przemiany Materii AM w Warszawie.  
Ginekologia polska (POLAND) Oct 1999, 70 (10) p759-65, ISSN 0017-0011 Journal Code: 0374641  
Document type: Controlled Clinical Trial; Journal Article ; English  
Abstract  
Languages: POLISH  
Main Citation Owner: NLM

Record type: Completed

An **intensive care** system designed and developed in IBBE PAS allows for electronic storage and automatic transmission of...  
... patient's BG meter and electronic logbook (Glucometer M+ Bayer) to central clinical computer by **telematic** connection. Despite effort made to keep the system as simple as possible, its proper handling...

... to obtain better average long-term glycemic control in patients with lower intelligence level using **telematic** data transmission in comparison with the patients treated in classical way (SDWG = 7.0 +/- 0...

11/3,K/4 (Item 4 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10499308 20001023 PMID: 10532014  
Telemedicine **in the neonatal intensive care unit**.  
Phillips M  
Neonatal Intensive Care Unit, Beth Israel Deaconess Medical Center,  
Boston, MA, USA.  
Pediatric nursing (UNITED STATES) Mar-Apr 1999, 25 (2) p185-6, 189,  
ISSN 0097-9805 Journal Code: 7505804  
Contract/Grant No.: NO1-LM-3535; LM; NLM  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

Telemedicine **in the neonatal intensive care unit**.  
A program of **telemedicine** has been developed in the NICU at the Beth Israel Deaconess Medical Center (BIDMC), in Boston, Massachusetts. The **telemedicine** project, "Baby Care Link," allows families to have increased access to their infant, care team...

Descriptors: Child, Hospitalized--psychology--PX; \*Communication; \*Family  
--psychology--PX; \*Infant, Very Low Birth Weight--psychology--PX; \*  
**Intensive Care** Units, Neonatal--organization and administration--OG; \*  
**Telemedicine** --organization and administration--OG

11/3,K/5 (Item 5 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10498019 20025687 PMID: 10559041  
**Sensors 2010**.  
Wilson C B  
Institute for the Future, Menlo Park, CA 94025-7020, USA.  
BMJ (Clinical research ed.) (ENGLAND) Nov 13 1999, 319 (7220) p1288,  
ISSN 0959-8138 Journal Code: 8900488  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

Descriptors: Biosensing Techniques; \*Communicable Disease Control--trends  
--TD; \* **Intensive Care** --trends--TD; \* **Telemedicine** --trends--TD

11/3,K/6 (Item 6 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10319114 99312459 PMID: 10384465

**Telematics in the neonatal ICU and beyond: improving care, communication and information sharing.**

Gray J; Jones P C; Phillips M; Veroff D; Safran C  
Department of Neonatology, Beth Israel Deaconess Medical Center, Boston, MA, USA.

Medinfo (CANADA) 1998, 9 Pt 1 p294-7, ISSN 1569-6332

Journal Code: 7600347

Contract/Grant No.: N01-LM-6-3535; LM; NLM

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**Telematics in the neonatal ICU and beyond: improving care, communication and information sharing.**

... 19 contracts from the National Library of Medicine (NLM) to develop, implement and test a **telemedicine** application to support the care of Very Low Birth Weight Infants. This project is the...

Descriptors: Home Care Services, Hospital-Based; \*Infant, Very Low Birth Weight; \* **Intensive Care** Units, Neonatal; \* **Telemedicine**

11/3,K/7 (Item 7 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10246768 99238543 PMID: 10220475

**Effect of telemedicine on health outcomes in 87 infants requiring neonatal intensive care .**

Rendina M C; Downs S M; Carasco N; Loonsk J; Bose C L  
Department of Health Policy and Administration, School of Public Health, University of North Carolina at Chapel Hill, 27599-7400, USA.

Telemedicine journal : the official journal of the American Telemedicine Association (UNITED STATES) Winter 1998, 4 (4) p345-51, ISSN 1078-3024 Journal Code: 9507612

Contract/Grant No.: 5-A03-AH 01176-03; AH; BHP; T15-LM07071; LM; NLM

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**Effect of telemedicine on health outcomes in 87 infants requiring neonatal intensive care .**

OBJECTIVE: This is an evaluation of a **telemedicine** system for the rapid interpretation of neonatal echocardiograms from a regional, level III neonatal **intensive care** unit (NICU). The use of **telemedicine** to support the cardiology needs of NICUs is increasing. However, there is very little published objective information regarding health outcomes or costs resulting from such **telemedicine** systems. The primary hypothesis tested was that the utilization of a **telemedicine** system for the interpretation of neonatal echocardiograms reduces the **intensive care** length of stay of low birthweight (LBW) infants. STUDY DESIGN: All infants who were admitted to neonatal **intensive care** at New Hanover Regional Medical Center during the first six months of the system were...

... were born in the same period of the previous year. The outcome measures were the **intensive care** length of stay, rate of transfer to academic medical centers, and mortality rate. RESULTS: A statistically non-significant reduction of 5.4 days in the **intensive care** length of stay (LOS) of low birthweight infants was observed (p = 0.37). The cost...

Descriptors: Echocardiography; \* **Intensive Care**, Neonatal; \*Remote Consultation...; Medical Centers; Costs and Cost Analysis; Echocardiography --economics--EC; Infant, Low Birth Weight; Infant, Newborn; **Intensive**

**Care** , Neonatal--economics--EC; Length of Stay; North Carolina; Outcome Assessment (Health Care); Patient Transfer; Remote...

11/3,K/8 (Item 8 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10139632 99123145 PMID: 9929240

**Baby CareLink: development and implementation of a WWW-based system for neonatal home telemedicine .**

Gray J; Pompilio-Weitzner G; Jones P C; Wang Q; Coriat M; Safran C  
Center for Clinical Computing, Beth Israel Deaconess Medical Center,  
Harvard Medical School, Boston, Massachusetts, USA.

Proceedings / AMIA ... Annual Symposium. AMIA Symposium (UNITED STATES)  
1998, p351-5, ISSN 1531-605X Journal Code: 100883449

Contract/Grant No.: N01-LM-6-3535; LM; NLM

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**Baby CareLink: development and implementation of a WWW-based system for neonatal home telemedicine .**

Baby CareLink is a multifaceted **telemedicine** application designed to provide individualized information and support to families of Very Low Birth Weight infants. We believe that this innovative use of WWW and **telemedicine** technologies will improve family satisfaction and clinical care. In conjunction with improvements in family involvement...

... clear cost savings. This paper discusses the CareLink architecture and lessons learned in implementing a **telemedicine** link with families at home from an in-hospital clinical unit.

Descriptors: Home Nursing; \*Infant, Very Low Birth Weight; \*Internet; \*Software; \* **Telemedicine** ; Computer Security; Computer Systems; Confidentiality; Database Management Systems; Evaluation Studies; Health Education; Infant, Newborn; **Intensive Care** Units, Neonatal

11/3,K/9 (Item 9 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10139580 99123097 PMID: 9929192

**The effect of telemedicine on neonatal intensive care unit length of stay in very low birthweight infants.**

Rendina M C

Department of Health Policy and Administration, School of Public Health,  
University of North Carolina, Chapel Hill, USA.

Proceedings / AMIA ... Annual Symposium. AMIA Symposium (UNITED STATES)  
1998, p111-5, ISSN 1531-605X Journal Code: 100883449

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**The effect of telemedicine on neonatal intensive care unit length of stay in very low birthweight infants.**

... study addresses the effect of the installation and use of a telecardiology system on the **intensive care** length of stay of very low birthweight (VLBW) newborn infants. DESIGN: A retrospective comparison of 314 VLBW infants admitted to one of two neonatal **intensive care** units for a three year period from calendar years 1994 through 1996. A regression model was constructed to predict the **intensive care** length of stay while controlling for known risk factors. RESULTS: **Telemedicine** 's effect

is to reduce the **intensive care** length of stay and it both statistically significant ( $p < 0.05$ ) and practically significant, reducing the **intensive care** length of stay by over 17%. The reduction in length of stay is greater at lower birthweights. CONCLUSIONS: Under the circumstances present in this study, **telemedicine** has been an effective intervention to reduce the **intensive care** length of stay.

Descriptors: Infant, Very Low Birth Weight; \* **Intensive Care** Units, Neonatal; \*Length of Stay; \* **Telemedicine**

11/3,K/10 (Item 10 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

10000205 98419766 PMID: 10182722  
**The wired health system: telemedicine comes of age.**  
Health care cost reengineering report (UNITED STATES) Aug 1998, 3 (8)  
p121-3, ISSN 1088-4653 Journal Code: 9707732  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**The wired health system: telemedicine comes of age.**  
**Telemedicine** is no longer pie-in-the-sky technology, but already at work saving hefty sums...

... that works over the Internet, avoiding the \$2,000 per day cost of the neonatal ICU.

Descriptors: Delivery of Health Care--trends--TD; \* **Telemedicine** --trends --TD...; Communication Networks; Cost-Benefit Analysis; Home Care Services --organization and administration--OG; Insurance, Health, Reimbursement; **Telemedicine** --economics--EC; United States

11/3,K/11 (Item 11 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09970907 98404793 PMID: 10182372  
**Communications special need profiles.**  
Wheeler T  
Telemedicine today (UNITED STATES) Aug 1998, 6 (4) p21, ISSN 1078-0351 Journal Code: 9505215  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

Descriptors: Child, Hospitalized; \*Computer Communication Networks; \* **Telemedicine** ; Child; Infant; Infant Care; Infant, Newborn; **Intensive Care** , Neonatal; Interpersonal Relations

11/3,K/12 (Item 12 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09935104 98357490 PMID: 9694117  
**Early experience using telemedicine for neonatal surgical consultations.**  
Robie D K; Naulty C M; Parry R L; Motta C; Darling B; Micheals M; Poropatich R K; Gomez E R  
Department of Surgery, Telemedicine Directorate, Walter Reed Army Medical Center, Washington, DC 20307-5001, USA.

Search Report from Ginger D. Roberts

Journal of pediatric surgery (UNITED STATES) Jul 1998, 33 (7)  
p1172-6; discussion 1177, ISSN 0022-3468 Journal Code: 0052631  
Document type: Clinical Trial; Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**Early experience using telemedicine for neonatal surgical consultations.**

BACKGROUND/PURPOSE: **Telemedicine** affords the opportunity to extend the presence of surgical evaluation to centers without an on...

...low-cost, desktop computer-based system, this study was designed to test the effectiveness of **telemedicine** in neonatal surgical consultation.

RESULTS: Early experience with six video-teleconference (VTC) and six store ...

... encountered primarily with the VTC modality, which also proved more consuming of physician time. CONCLUSIONS: **Telemedicine** was used successfully in each case and proved accurate in diagnosis and guiding further evaluation. This is the first report of the use of **telemedicine** for surgical consultation in the **intensive care** nursery.  
; Infant, Newborn; **Intensive Care** Units, Neonatal; Prospective Studies; Random Allocation; Remote Consultation--instrumentation--IS

11/3,K/13 (Item 13 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09596103 98020530 PMID: 9357659

**Telemedicine in the neonatal ICU and beyond: improving care for high-risk newborns and their families.**

Gray J; Jones P C; Phillips M; Gertman P; Veroff D; Safran C  
Department of Neonatology, Beth Israel Deaconess Medical Center, Boston, MA, USA.

Proceedings : a conference of the American Medical Informatics Association / ... AMIA Annual Fall Symposium. AMIA Fall Symposium (UNITED STATES) 1997, p413-7, ISSN 1091-8280 Journal Code: 9617342

Contract/Grant No.: N01-LM-6-3535; LM; NLM

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**Telemedicine in the neonatal ICU and beyond: improving care for high-risk newborns and their families.**

... 19 contracts from the National Library of Medicine (NLM) to develop, implement and test a **telemedicine** application to support the care of Very Low Birth Weight Infants. This project is the...

Descriptors: Infant, Very Low Birth Weight; \* **Telemedicine** ; Computer Security; Confidentiality; Family; Infant Care; Infant, Newborn; **Intensive Care** Units, Neonatal

11/3,K/14 (Item 14 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

09490706 97364477 PMID: 10168279

**Utilization and cost savings of a wide-area computer network for neurosurgical consultation.**

Bailes J E; Poole C C; Hutchison W; Maroon J C; Fukushima T  
Department of Neurosurgery, Allegheny University of the Health Sciences,

Allegheny General Hospital, Pittsburgh, PA, USA.

Telemedicine journal : the official journal of the American Telemedicine Association (UNITED STATES) Summer 1997, 3 (2) p135-9, ISSN 1078-3024  
Journal Code: 9507612

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

BACKGROUND AND OBJECTIVE: **Telemedicine** systems offer many potential advantages for health care delivery. Most reports have centered on the...

... determine the potential cost savings of such a network. METHODS: We prospectively reviewed 100 consecutive **telemedicine** neurosurgical consultations from 20 western Pennsylvania community hospitals participating in the NeuroLink network. Data related...

...a direct result of the remote diagnosis and image review disclosing that neurosurgical procedures or **intensive care** were not required. Cost analysis, comparing the average LOS at AGH with that of the...

11/3,K/15 (Item 15 from file: 154)

DIALOG(R) File 154:MEDLINE(R)

09490705 97364476 PMID: 10168278

**Telespirometry: novel system for home monitoring of asthmatic patients.**

Bruderman I; Abboud S

Meir Hospital, Kfar Saba, Israel.

Telemedicine journal : the official journal of the American Telemedicine Association (UNITED STATES) Summer 1997, 3 (2) p127-33, ISSN 1078-3024 Journal Code: 9507612

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

... retrospectively to detect early signs of asthmatic deterioration, which resulted in dispatch of the mobile **intensive care** unit (MICU) to the patient's home. RESULTS: In 19 patients (49%), analysis of the...

Descriptors: Asthma--prevention and control--PC; \*Home Care Services --organization and administration--OG; \*Spirometry--methods--MT; \***Telemedicine** --organization and administration--OG; Adolescence; Adult; Aged; Child; **Intensive Care** Units; Middle Age; Mobile Health Units; Monitoring, Physiologic; Reproducibility of Results

11/3,K/16 (Item 16 from file: 154)

DIALOG(R) File 154:MEDLINE(R)

09397111 97285334 PMID: 9140589

**Virtual reality and telepresence for military medicine.**

Satava R M

Yale University School of Medicine, New Haven, CT 06510, USA.

Annals of the Academy of Medicine, Singapore (SINGAPORE) Jan 1997, 26 (1) p118-20, ISSN 0304-4602 Journal Code: 7503289

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

... new technologies of teleoperation and telesurgery we can provide remote treatment and even surgery through **telemedicine**. The following



framework for military medicine will leverage upon the current electronic battlefield. A personnel...

... soldier. Once stabilised, he will be placed in a critical care pod, a fully automated **intensive care** unit in a stretcher, which will monitor his vital signs, administer fluids and medications and...

Descriptors: Computer-Assisted Instruction; \*Military Medicine--methods--MT; \* **Telemedicine** --instrumentation--IS; \*Therapy, Computer-Assisted; \*User-Computer Interface; \*War...; Monitoring, Physiologic--instrumentation--IS; Remote Consultation--instrumentation--IS; Remote Consultation--methods--MT; Surgery--education--ED; **Telemedicine** --methods--MT; Triage; United States

11/3,K/17 (Item 17 from file: 154)  
DIALOG(R)File 154:MEDLINE(R)

09220894 97115048 PMID: 10163731

**Data protection and security within TANIT.**

Corbeel L J; Corbeel I L; Hortmann M

Department of Mathematics, University of Bremen, Germany.

Studies in health technology and informatics (NETHERLANDS) 1996, 27  
p162-7, ISSN 0926-9630 Journal Code: 9214582

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

The word "TANIT" means " **Telematics** for ANAesthesia and Intensive Therapy". The objective of the TANIT project is to develop information and **telematic** systems in critical care environments that are integrated in the hospital information space. The goal...

...successful patient data management, medical/nursing activities, clinical audit, and departmental management for Anaesthesia and **Intensive Care**. In this context, the task of Workpackage PROTEC-Data Protection, Security and Confidentiality- was to...

11/3,K/18 (Item 18 from file: 154)  
DIALOG(R)File 154:MEDLINE(R)

09220872 97115029 PMID: 10163710

**Telematics and protocols of care in critical care environments.**

Wilson A J; Bowes C L; Holland J

IBEES, Lodge Moor Hospital, University of Sheffield, UK.

Studies in health technology and informatics (NETHERLANDS) 1995, 16  
p157-66, ISSN 0926-9630 Journal Code: 9214582

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

**Telematics and protocols of care in critical care environments.**

... the utility of this concept in the clinical environment, the systems from the AIM TANIT ( **Telematics** in Anaesthesia and Intensive Therapy) project have been used as prototype platforms. The application of the concepts developed are described in two critical care environments: the anaesthesia department and the **intensive care** unit. Problems in using protocols of care in **intensive care** units suggest that integrating these with a problem solving methodology to create an integrated care...

11/3,K/19 (Item 19 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08783898 96123793 PMID: 8563356

**A client/server system for remote diagnosis of cardiac arrhythmias.**  
Tong D A; Gajjala V; Widman L E  
Department of Medicine, University of Oklahoma Health Sciences Center,  
Oklahoma City, USA.  
Proceedings / the ... Annual Symposium on Computer Application sic in  
Medical Care. Symposium on Computer Applications in Medical Care (UNITED  
STATES) 1995, p601-5, ISSN 0195-4210 Journal Code: 8113685  
Contract/Grant No.: R01 LM05530; LM; NLM  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

... rhythms from electrocardiograms (ECGs) produced by 12-lead ECG  
machines, ambulatory (Holter) monitoring systems, and **intensive - care**  
unit monitors. Usually, the practitioner caring for the patient does not  
have specialized training in...

... to the health care system. We hypothesized that we could develop a  
client-server based **telemedicine** system capable of providing access to  
(1) an on-line knowledge-based system for remote...

Descriptors: Arrhythmia--diagnosis--DI; \*Computer Systems; \*Electrocardio  
graphy; \* **Telemedicine**

11/3,K/20 (Item 20 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08604889 95364176 PMID: 7637171

**[Tele-ECG transmission for patients with out-of-hospital cardiac arrest  
in Osaka City.]**

Shindoh M; Nishi S; Kurita S; Hayashi M; Yukioka H; Fujimori M  
Department of Emergency Medicine, Osaka City University Hospital.  
Masui. The Japanese journal of anesthesiology (JAPAN) Jun 1995, 44  
(6) p890-4, ISSN 0021-4892 Journal Code: 0413707  
Document type: Clinical Trial; Controlled Clinical Trial; Journal Article  
; English Abstract  
Languages: JAPANESE  
Main Citation Owner: NLM  
Record type: Completed

... electrocardiogram from the location of out-of-hospital cardiac arrest  
recognized by them to the **ICU**. Successful tele-ECG transfer was achieved  
in 34 cases (57.6%). The most common reason...

Descriptors: Electrocardiography; \*Emergency Medical Services; \*Heart  
Arrest--diagnosis--DI; \* **Telemedicine**

11/3,K/21 (Item 21 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08435046 95196468 PMID: 7889753

**TANIT AIM project (A2036): Telematics for ANaesthesia and Intensive  
Therapy.**

Bowes C L; Holland J  
Kontron Instruments Ltd., Croxley Business Park, Watford, Herts, UK.  
Computer methods and programs in biomedicine (IRELAND) Oct 1994, 45

(1-2) p159-64, ISSN 0169-2607 Journal Code: 8506513  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

**TANIT AIM project (A2036): Telematics for ANaesthesia and Intensive Therapy.**

On-going work relating to the development of advanced **telematics** systems for Critical Care environments is described. This work is in part sponsored by the...

... the AIM TANIT project. Two example departments have been selected for piloting in the project: **Intensive Care** and Anaesthesia. The objective of this paper is to outline the complex issues that need...

Descriptors: Anesthesia Department, Hospital; \*Computer Communication Networks; \*Hospital Information Systems; \* **Intensive Care** Units...; administration--OG; Computer Security; Confidentiality; Data Collection --standards--ST; Europe; Hospital Information Systems--standards--ST; **Intensive Care** Units--organization and administration--OG; Medical Records Systems, Computerized; Pilot Projects; Systems Integration

11/3,K/22 (Item 22 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08408165 95170366 PMID: 7866088

**Electronic health records: the European scene.**

Kalra D  
Clinical Records Research Unit, Medical College, St Bartholomew's Hospital, London.

BMJ (Clinical research ed.) (ENGLAND) Nov 19 1994, 309 (6965)  
p1358-61, ISSN 0959-8138 Journal Code: 8900488

Comment in BMJ. 1995 Jan 28;310(6974) 262; Comment in PMID 7866160;  
Comment in BMJ. 1995 Mar 4;310(6979):603; Comment in PMID 7888965

Document type: Journal Article; Review; Review, Tutorial

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

...process. The advanced informatics in medicine (AIM) programme seeks to encourage research and development in **telemedicine** in areas that are beyond the scope of any one country. It includes many European...

...as laboratory results, biosignals, x ray images, and photographs, and in clinical specialties varying from **intensive care** to medicine for elderly people. One example, the good European health record project, is developing...

11/3,K/23 (Item 23 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08224933 94358816 PMID: 8078009

**Criteria for safe cost-effective pediatric trauma triage: prehospital evaluation and distribution of injured children.**

Sola J E; Scherer L R; Haller J A; Colombani P M; Papa P A; Paidas C N  
Department of Surgery, Johns Hopkins University, Baltimore, MD 21205.

Journal of pediatric surgery (UNITED STATES) Jun 1994, 29 (6)  
p738-41, ISSN 0022-3468 Journal Code: 0052631

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM  
Record type: Completed

... sensitivity of 86% in predicting which trauma patients would require operating room and/or pediatric **intensive care**, while maintaining a specificity of 90%. Fifteen patients died; however, by TRISS methodology there were...

; Child; Child, Preschool; Emergency Service, Hospital; **Intensive Care** Units, Pediatric; Sensitivity and Specificity; **Telemedicine**; Trauma Centers; Trauma Severity Indices; Wounds and Injuries--diagnosis--DI; Wounds and Injuries--mortality--MO...

11/3,K/24 (Item 24 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

08041677 94176836 PMID: 8130488

**A pen-based system to support pre-operative data collection within an anaesthesia department.**

Sanz M F; Gomez E J; Trueba I; Cano P; Arredondo M T; del Pozo F  
Department of T.E. Bioengineering, E.T.S.I. Telecomunicacion, Universidad Politecnica de Madrid.

Proceedings / the ... Annual Symposium on Computer Application sic in Medical Care. Symposium on Computer Applications in Medical Care (UNITED STATES) 1993, p321-5, ISSN 0195-4210 Journal Code: 8113685

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

... the hospital environment. The work presented is currently being realised under the Research Project "TANIT: **Telematics** in Anaesthesia and **Intensive Care**", within the "A.I.M.-- **Telematics** in Health CARE" European Research Program.

11/3,K/25 (Item 25 from file: 154)  
DIALOG(R) File 154:MEDLINE(R)

07048002 91351807 PMID: 1652736

**[Organization of organ transplantation in France]**

Organisation de la transplantation d'organes en France.

Colpart J J; Noury D; Cochat P; Kormann P; Moskovtchenko J F

Coordonnateurs regionaux de transplantation, hopital Edouard-Herriot, Lyon, France.

Pediatrie (FRANCE) 1991, 46 (4) p313-22, ISSN 0031-4021

Journal Code: 0401127

Document type: Journal Article; Review; Review, Tutorial; English Abstract

Languages: FRENCH

Main Citation Owner: NLM

Record type: Completed

... involves: a presume consent law; an emergency policy with mobile medical rescue teams and polyvalent **intensive care** units; a three level France Transplant organization: national, regional and local; hospital physicians as regional transplant coordinators who are independent from transplant teams; waiting list **telematic** computer system which promotes priorities: high emergencies, high-sensitized and pediatric recipients.

11/3,K/26 (Item 26 from file: 154)

DIALOG(R)File 154:MEDLINE(R)

06791961 91108956 PMID: 2273552

[The anesthesiologist's role in the French emergency medical system]

Katoh K; Marukawa S

Masui. The Japanese journal of anesthesiology (JAPAN) Nov 1990, 39  
(11) p1547-53, ISSN 0021-4892 Journal Code: 0413707

Document type: News ; English Abstract

Languages: JAPANESE

Main Citation Owner: NLM

Record type: Completed

... emergency transport and emergency information service are managed by anesthesiologists. Anesthesiologists on duty at the **tele - medicine** center give medical team instructions to start at once. The team is composed of an anesthesiologist, a nurse and an ambulancier. They start to give **intensive care** medicine to critically ill patients on the spot. The philosophy of SAMU is that doctors...

11/3,K/27 (Item 1 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

03936126 82209757 PMID: 7083874

Telemedicine in critical care: problems in design, implementation, and assessment.

Grundt B L; Jones P K; Lovitt A

Critical care medicine (UNITED STATES) Jul 1982, 10 (7) p471-5,  
ISSN 0090-3493 Journal Code: 0355501

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Telemedicine in critical care: problems in design, implementation, and assessment.

We introduced **telemedicine**, i.e., telecommunications for delivery of health services, to alleviate scarcity and maldistribution of critical...

... interactive television to provide consultation with university-based critical care physicians for patients in the **ICU** of a 100-bed hospital. **Telemedicine** "visits" (1548) were made to 395 patients. Television consultation had greater clinical and educational impact...

... Extensive background research, currently underway at the University of Pittsburgh, is necessary before the next **telemedicine** demonstration.

Descriptors: Critical Care--methods--MT; \* **Intensive Care** Units;  
\*Referral and Consultation; \*Telecommunications

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04177896/7

DIALOG(R)File 20:Dialog Global Reporter  
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04177896 (THIS IS THE FULLTEXT)

**Telemedicine - fact or fiction?**

HINDU

January 31, 1999

In this article DR. K. GANAPATHY indicates the possible role of telemedicine in the years to come.

WHAT is telemedicine?

Telemedicine is a method, by which patients can be examined, investigated, monitored and treated, with the patient and the doctor located in different places. "Tele" is a Greek word meaning "distance" and "Mederi" is a Latin word meaning, "to heal". Time magazine called Telemedicine "healing by wire". Though often considered "futuristic" and "experimental", telemedicine is today a reality and has come to stay. In telemedicine, one transfers the expertise not the patient.

Hospitals of the future will drain patients from all over the world without geographical limitations. In Cyberia after all, one is a netizen! High quality medical services can be brought to the patient, using telecommunications and information technology, rather than transporting the patient to distant and expensive tertiary care centres. The goal of telemedicine is to eliminate unnecessary travelling of patients and their escorts.

Image acquisition, image storage, image display and processing, and image transport represent the basis of telemedicine. Telemedicine is becoming an integral part of health care services in several countries including the U.K., U.S., Canada, Italy, Germany, Japan, Greece, and Norway.

The simplest application of telemedicine is teleradiology where images are transmitted to remote destinations. Today, there are at least 8000 teleradiology units installed worldwide.

When was modern telemedicine born?

In the Sixties, the National Aeronautics and Space Administration (NASA) played an important part in introducing telemedicine when humans first went into outer space. Devices were developed to monitor the pulse rate, blood pressure etc of the orbiting astronauts. As a concept in the Sixties, it was indeed far ahead of the times. In December 1988, telemedicine was used to provide consultations from medical centres in the U.S., to the earthquake-hit Armenia in the erstwhile USSR. Satellite technology had transcended political, cultural, economic and social barriers to provide medical consultation. It is however only in the last two years that telemedicine has advanced by leaps and bounds.

What is its relevance particularly in a developing country like India?

In Utopia, every citizen has immediate access to the appropriate specialist for medical consultation. In the real world, this cannot even be a dream. It is a fact of life that "all men are equal, but some are more equal than others". We are at present, unable to provide even total primary medical care in the rural areas. Secondary and tertiary medical care is not uniformly available even in the suburban and urban areas. Incentives to entice the specialist to practise in suburban areas have failed. After all professional isolation would lead to mediocrity, which is one step away from entering the Jurassic Park. "Health for All by 2000" may be a slogan even in 2020. Paradoxically, areas most likely to benefit from telemedicine, are those least likely to afford it or have the requisite communication infrastructure. This may no longer be true. In contrast to the bleak scenario in health care, computer literacy is fast developing in the urban and suburban areas. Prices are literally crashing. Health care

providers in several areas in the world realising this, are now looking at telemedicine as their newly found avatar. Theoretically, it is far easier to set up an excellent telecommunication infrastructure in suburban and rural India than to place thousands of medical specialists in these places. The Indian government has already realised that the future of telecommunication lies in satellite based technology and not in laying thousands of miles of copper terrestrially. To this end, global satellite systems will soon be available. Extending these services to provide health care in remote areas is not as absurd as it may initially appear. To the prophet of doom, telemedicine in India is a non-issue. However, could even the greatest optimist, have anticipated the phenomenal explosion in the use of computers, even in suburban India?

What does telemedicine encompass?

Telemedicine covers a wide range of activities. In the past it was primarily teleradiology - the transferring of high resolution medical images, Xray pictures, ultrasound, CT, MRI pictures, live transmission of ECG's and echocardiograms. Today even a detailed clinical examination can be conducted remotely. Gloves with special sensors are available which give a tactile feedback from a transmitted image. Electronic stethoscopes can transmit sounds from the chest and the heart, from one continent to another, without any alteration in the quality of the sound. Traditionally only the physician at the other end of the stethoscope could hear the sounds. Interpretation was dependent on what was between the two ear pieces! Today the same sounds can be heard through a speaker phone by an unlimited number of doctors in far away places. The sounds can be compared with those in different diseases from a "referral sound laboratory" and the specific problem identified. A wide variety of internal and external examinations can be done with the patient far away - even in outer space or on the moon. Endoscopic cameras peering into the patient's interior can be manipulated from several thousand miles away. Dermascopes can transmit skin lesions in the natural hue (one has a choice of several million colours). Two way interactive communication occurs while a remote examination is being carried out. Detailed analysis and monitoring of patients can be done remotely using sophisticated medical probes and monitors. Access to multimedia patient records, medical databases and treatment algorithms are just a mouse click away.

How does a telemedicine system really work?

A basic telemedicine system consists of a personal computer (with appropriate software), a modem, a telephone line. A scanner and a camera (digital/video) is necessary at the remote end. Standard video conferencing systems transmit images from otoscopes, laryngoscopes (instrument used to see the ear, nose and throat) ophthalmoscopes (to see the retina), laparoscopes (the interior of the abdomen), endoscopes (esophagus, stomach and intestines) and so on. A TV or computer monitor delivers an interactive, full motion, full colour picture of the people at both sites. Audio quality should be excellent. Image quality would depend on the application. Higher quality means more cost. It is essential to know if this increased image quality will alter diagnosis and treatment. ISDN (Integrated Services Digital Network - now available in major cities in India) lines are traditionally used for telemedicine. A leased line or a VSAT (Very Small Aperture Terminal) link can also be used. Actual choice would depend on cost, availability, reliability and necessity. A normal STD line would have limitations but may still suffice.

What are its uses?

Large university teaching hospitals can export their skills to the remote primary centres. Distance becomes immaterial. Other spin offs include access to archived electronic scans and health care records. Health care information (preventive vaccination programmes, information for expectant mothers, information about specific diseases, support groups etc) can be universally available at the touch of a button.

With CT scanners being installed in peripheral hospitals, a national emergency teleconsultation system was introduced in Ireland. This provided

high quality video transmission of pictures. The speed, quality and completeness of information exchanged resulted in availability of instantaneous emergency tertiary consultation. Recently, the author located in Chennai, carried out a neurological examination of a volunteer based in Toronto.

Fetal telemedicine is now a reality. Pilot projects have shown the efficacy of transmitting fetal ultrasound images from high risk pregnant women. Image quality was sufficient for diagnosis in 97 per cent of cases. There was a significant fall in unnecessary referrals to specialists. Patient satisfaction with the "face to face" video consultation was significantly high. Ultrasound scanners are dime a dozen. Expert ultrasonologists are not. Telemedicine provides a method of bridging the gap.

Tele endoscopy: Today, an expert can peer into the stomach of a patient hundreds or thousands of miles away and make a diagnosis. Present technology enables transmission of high quality images via telecommunication networks at an acceptable cost. Signals from a video camera attached to an endoscope are compressed and digitised by a video codec prior to transmission to remote institution via a 2Mbit/s circuit. The receiver can see the endoscopic examination on a monitor and influence the control and movement of the endoscope by communicating over two-way sound and picture connection with the person operating it.

Telemedical education: Regional, national, international and even intercontinental grand rounds, forming an unbelievable educational medical system, is today a practical proposition. Live two-way interactive transmissions of major surgical procedures from any part of the globe to any metropolitan city in India is now taking place, thanks to VSNL. Recertification of the physician is mandatory in most countries and will soon be in India as well. Interactive Continuing Medical Education programmes are already available where the physician can attend virtual conference, without travelling.

Telepathology: A pathologist using micromanipulators can remotely change the field of view, focus and magnify a slide located under a microscope thousands of miles away. Since the first European meeting on Telepathology in 1992, many such meetings have been held. Several sites have now been interlinked in France, Germany, Spain, Switzerland and other areas in Europe.

#### Established telemedicine networks

The Arizona International Telemedicine Network linking the U.S. to Mexico was established in 1993. Biopsy specimens are examined as images on a monitor at a remote site, instead of under a microscope. The network includes sites in Arizona, Mexico and China, American Telemedicine International, a subsidiary of Massachusetts General Hospital offers teleradiology facilities to Saudi Arabia, Jordan and Lebanon. Twenty-four hour professional opinions are communicated back to the remote sites. Telemedicine in Japan: There are at least 175 telemedicine programmes operating in Japan. Several links have also been established between hospitals in Japan and the U.S. With favourable government support, a hungry electronics industry and the absence of state licensure restrictions, telemedicine is poised to take great leaps.

#### What are the advantages of telemedicine?

Worldwide, there is a difficulty in retaining specialists in non-urban areas. The distribution of specialists in the country is indeed lopsided. Chennai has three medical universities. There are more neurologists and neurosurgeons in Chennai, than in all the states of northeastern India put together. The increasing availability of excellent telecommunications infrastructure and video conferencing equipment will help provide a physician where there was none before. Telemedicine can thus avoid unnecessary travel and expense for the patient and his family, improve outcomes and even save lives. Once the "virtual" presence of the specialist is acknowledged, a patient can access resources in a tertiary referral centre without the constraints of distance. Telemedicine allows



patients to stay at home ensuring much needed family support. In a large project in the U.S. 83 per cent of patients who would have been transferred to an urban hospital remained in their community reducing the cost by at least 40 to 50 per cent. This also ensures maximal utilisation of suburban hospitals. The general practitioner in the rural/ suburban area often feels that he would loose his patient to the city consultant. With telemedicine the community doctor continues to primarily treat the patient under a specialist's umbrella. With modern software/ hardware at either end, 90 per cent of the normal interaction can be accomplished through telemedicine.

What are the legal issues in such a practice?

The fundamental question is "Is the patient electronically transported to it vice-versa? Where does the physician practice? In his house or at the patient's place of residence. Can a doctor in India treat a patient in the U.S. or vice versa? The remote specialist can be deemed to be a consultant to the primary physician who would be signing the charts and taking the primary responsibility. Malpractice suits implicating teleconsultants and telemedicine equipment may be a reality eventually. Liability guidelines will have to take into account the location of the teleconsultant and the patient. Until recently, there were no specific legislations to endorse consultation, diagnosis and treatment using telemedicine. Insurance companies and governments were reluctant to reimburse patients or pay physicians for teleconsultations.

Is offering telemedical consultation practising medicine? Is a consultant who has no direct contact with the patient practicing medicine?

Telemedicine has no doubt made its debut. The launch of the Journal of Telemedicine and Telecare, the establishment of Departments of Telemedicine, the hundreds of articles published, and the number of international conferences on this subject, surely speaks volumes. With a number of high speed communication satellites orbiting the earth, tomorrow's patient and doctor will have access to high speed telecommunication facilities all the time. The Holy Grail of "anytime, anywhere, anyspeed" communication is no longer a myth. (Chennai Telephones notwithstanding) 1700 commercial satellites are scheduled to be launched in the next decade worldwide, compared to the 150 presently in orbit. Telemedicine may result in change in the relationships of health professionals. A nurse in a rural area will carry out instructions given by the teleconsultant from the urban centre. Her status will be considerably higher.

All results will be faxed home. Large volumes of information regarding the hospital, various departments, doctors, lab tests, billing, pre operative, and post operative instructions, follow up etc. will be available on automated audiotext. Using user- friendly menus and a touch telephone a patient can get all the information required from the comfort of his home.

It may be argued that body language is vital in any interpersonal relationship. Today's video conferencing systems are so sophisticated that even four different groups of people can be viewed simultaneously on a giant screen. Minute facial expressions can be discerned with unbelievable clarity. Participants remain in view at all times making it literally a face to face meeting. The spontaneity, naturalness, and interactivity of a conventional person to person meeting are all there - excepting that the patient and doctor are hundreds or even thousands of miles away. Issues can be addressed, multiple opinions can be obtained from all around the globe quickly. High speed networks and multimedia servers allow medical professionals to exchange many types of health care information. Ultimately levels of health care in rural areas will be increased, and costs will be reduced. Preliminary trials with telemedicine have revealed high levels of satisfaction among patients, general practitioners, specialists and the technologists. Pilot projects world wide have evaluated ultimate outcome using telemedicine. It appears that this innovative technology is here to stay. Questions are often raised - and rightly so - whether telemedicine is the result of technology push rather than clinical pull.

Information technology has changed, is changing, and will continue to change the delivery of health care, worldwide. Humankind is witnessing a growth in technology unprecedented in the annals of history. Previous generations of physicians will find the new concepts of telemedicine unfathomable. To many, it may sound blasphemous. What will happen to the individual doctor-patient relationship considered sacrosanct for centuries? Is it not sacrilegious and bordering on heresy to treat a patient in another continent without knowing his family and cultural background? Yes, say the diehards. No, say the technology enthusiasts. The truth, as in all great truths, is probably somewhere in between.

Telemedicine has not yet made a significant impact on mainstream medicine. The crystal ball reveals that remote consultation will be commonplace in specialties where images form a major part of the consultation. A non-specialist centre can get a specialist's opinion and a specialist get a second opinion. Radiology, pathology, and ultrasound centres will interact electronically in real time, to obtain images. In specialties like dermatology, accident and emergency medicine, and fetal medicine, concomitant video conferencing will allow the specialist to interact with the primary physician alone or with the patient in addition. Remote face to face video consultation may even be perceived as less threatening and more acceptable in certain situation like psychiatric consultations. Workstations with the necessary software will be a common feature in the homes of specialists. Like most other professionals, the telespecialist of the future will offer advice from the comfort of his home without having to travel long distance to a hospital.

Junior hospital staffs now depend on telephonic advice, which has considerable limitations. Tomorrow, using telemedicine, the senior consultant can evaluate the patient and the investigations from his/her bedroom and take the correct decision. The patient need not wait for the next day's "rounds".

The first generation of telemedicine enthusiasts should not forget that technology should be used as a support of treat patients and not viewed as a goal in itself. The challenge today is not confined to overcoming technological barriers, insurmountable though they may appear. It is true that available technology still has considerable scope for improvement. Rather the challenge is why, where and how, to implement which technology and at what cost. A needs assessment is critical. Due to enormous pressure from powerful vendors, the perceived needs for telemedicine may not conform to the actual needs. The take off problems facing telemedicine is legion. Telemedicine today sounds hep and cool, but the reality may be quite different. The future however promises to be exciting. Time alone will tell whether telemedicine is a "forward step in a backward direction" or to paraphrase Neil Armstrong "one small step for man but one giant leap for mankind."

(This author is a senior consultant neurosurgeon with the Apollo Hospitals, Chennai).

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Set	Items	Description
S1	69	AU=(ROSENFELD, B? OR ROSENFELD B? OR BRESLOW M? OR BRESLOW, M?)
S2	10	S1 AND (ICU OR EICU OR INTENSIVE()CARE OR HOSPITAL OR CRITICAL()CARE?)
S3	4	PN=(US 6090056 OR US 5593426 OR US 5673304 OR US 5694452)
S4	14	S2 OR S3
S5	14	RD (unique items)

?t5/3,k/all

5/3,K/1 (Item 1 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
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13181080 SUPPLIER NUMBER: 71325906 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Demands of an Aging Population for Critical Care and Pulmonary Services. (Letter to the Editor)**

Lynn, Joanne; Hanson, C. W., III; Sladen, Robert N.; Cohen, Neal H.; Deutschman, Clifford S.; **Breslow, Michael**; Angus, Derek C  
JAMA, The Journal of the American Medical Association, 285, 8, 1016  
Feb 28, 2001

DOCUMENT TYPE: Letter to the Editor ISSN: 0098-7484 LANGUAGE:  
English RECORD TYPE: Fulltext  
WORD COUNT: 1812 LINE COUNT: 00150

**Demands of an Aging Population for Critical Care and Pulmonary Services. (Letter to the Editor)**  
... **Breslow, Michael**

TEXT:

To the Editor: The Committee on Manpower for Pulmonary and **Critical Care Societies (COMPACCS)** (1) reported that the ... is now. Aggressive care management and advance care planning might greatly reduce patient demand for **critical care** services in particular and for physician services in general. Especially among the very old, services...

...the 22% of days that patients with chronic obstructive pulmonary disease (COPD) spend in the **hospital** 1 to 3 months before death, (2) the workforce estimates might look very different.  
Second...

...provides a comprehensive analysis of intensivist workforce requirements. (1) As a society dedicated to the **intensive care** management of surgical patients, we note with interest the conclusion that intensivists were "less likely...

...postoperative patients and patients with burns" and "more likely to provide care in medical ICUs (**intensive care** units)." The study also found that there were 464 graduates from internal medicine -- based **critical care** training (pulmonary plus internal medicine) programs vs 130 from surgically oriented (anesthesia plus surgery) programs in 1996.

These findings suggest that intensivists have not "penetrated" postoperative **intensive care** to the same extent as they have medical **intensive care**. There are a number of explanations with significant implications. Current reimbursement schedules reward the anesthesiologist and the surgeon considerably more for intraoperative than for postoperative **critical care**, whereas **critical care** reimbursement compares favorably with alternative activities for internists and pulmonologists. Furthermore, surgeons may be less...

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...Based on these factors, we concur with the authors' conclusion that the current proportion of **ICU** patients whose care is managed by intensivists is already inadequate and believe that the data suggest that postoperative patients are particularly underserved. We also believe that the provision of postoperative **critical care** requires unique competencies. We conclude that interventions designed to increase the number of surgically oriented...

...of Pennsylvania  
Philadelphia  
Michael Breslow, MD  
VISICU Inc  
Baltimore, Md  
for the American Society of **Critical Care** Anesthesiologists  
(1.) Angus DC, Kelley MA, Schmitz RJ, White A, Popovich J Jr.  
Current and...

...172-173.  
(3.) Hanson CW, Deutschman CS, Anderson HL, et al. Effects of an organized **critical care** service on outcomes and resource utilization: a cohort study. Crit Care Med. 1999;27:270-274.  
(4.) Pronovost PJ, Jenckes MW, Dorman T, et al. Organizational characteristics of **intensive care** units related to outcomes of abdominal aortic surgery. JAMA. 1999; 281:1310-1317.  
(5.) Ghorra...

...Buczko G, Simme HH. Analysis of the effect of conversion from open to closed surgical **intensive care** unit. Ann Surg. 1999;229:163-171.  
(6.) Martinez B. Business consortium to launch effort...

...caveats.  
First, Lynn contends that increased use of advanced care planning may reduce demand for **ICU** care, especially in the very old. We modeled this scenario explicitly (Table 2 of our...

...use of health care technologies. (1,2)  
Second, Lynn speculates that a 50% reduction in **hospital** use (and presumably **ICU** use) in the last 3 months of life for patients with COPD would markedly affect workforce estimates. But the majority of **ICU** admissions for COPD are not at the end of life. (3) Thus, even if such a reduction were possible, the impact on **ICU** demand is likely to be minimal. Furthermore, attempts by managed care organizations to limit potentially ineffective **ICU** care at the end of life have led to relatively modest reductions in **ICU** resource use (4) and possibly increased mortality. (5)  
Third, Lynn correctly points out that many...

...aging population.  
Finally, our article was not intended as a call for more pulmonary and **critical care** specialists. Rather, it was designed to be an example of a general problem and to...

...with Dr Hanson and colleagues that intensivists do not appear to have "penetrated" the postoperative **ICU** to the same extent as the medical **ICU**. There are several possible reasons, some of which are mentioned by Hanson et al. We...

...did not have adequate power, however, to determine whether this demand differed by type of **ICU**.

Derek C. Angus, MD, MPH  
**Critical Care** Division

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University of Pittsburgh School of Medicine  
Pittsburgh, Pa  
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...1996;275:1907-1914.

(3.) Seneff MG, Wagner DP, Wagner RP, Zimmerman it, Knaus WA.  
**Hospital** and 1-year survival of patients admitted to **intensive care**  
units with acute exacerbation of chronic obstructive pulmonary disease.  
JAMA. 1995;274:1852-1B57.

(4...

5/3,K/2 (Item 2 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB  
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12906238 SUPPLIER NUMBER: 68157937 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Depression, Hopelessness, and Desire for Hastened Death in Terminally Ill**  
**Patients With Cancer.**  
Breitbart, William; **Rosenfeld, Barry** ; Pessin, Hayley; Kaim, Monique;  
Funesti-Esch, Julie; Galietta, Michele; Nelson, Christian J.; Brescia,  
Robert  
JAMA, The Journal of the American Medical Association, 284, 22, 2907  
Dec 13, 2000  
ISSN: 0098-7484 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 4417 LINE COUNT: 00427

... **Rosenfeld, Barry**

... to desire for hastened death.

Design Prospective survey conducted in a 200-bed palliative care  
**hospital** in New York, NY.

Patients Ninety-two terminally ill cancer patients (60% female; 70%  
white...

...life care.

METHODS

Patients

Patients were recruited after admission to a 200-bed palliative care  
**hospital** in New York City between June 1, 1998, and January 31, 1999.  
Patients had a...

...benefits of study participation and consented to participate. The study  
was approved by the Calvary **Hospital** institutional review board.

Of 154 patients offered participation, 122 consented (79%; most  
patients who refused...by 2 investigators to establish reliability.  
Demographic and medical data were elicited from subjects and **hospital**  
charts. Patients diagnosed with major depression (based on SCID interviews)  
were referred to the institution...Fordham University, Bronx, NY (Dr  
Rosenfeld and Ms Galietta); and the Palliative Care Institute, Calvary  
**Hospital** , Bronx, NY (Dr Brescia).

Corresponding Author: William Breitbart, MD, Department of  
Psychiatry and Behavioral Sciences...

5/3,K/3 (Item 3 from file: 148)

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10967383 SUPPLIER NUMBER: 54409553 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Organizational Characteristics of Intensive Care Units Related to**  
**Outcomes of Abdominal Aortic Surgery.**  
Pronovost, Peter J.; Jenckes, Mollie W.; Dorman, Todd; Garrett, Elizabeth;

**Breslow, Michael J. ; Rosenfeld, Brian A. ;** Lipsett, Pamela A.; Bass, Eric  
JAMA, The Journal of the American Medical Association, 281, 14, 1310(1)  
April 14, 1999  
ISSN: 0098-7484      LANGUAGE: English      RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 7091      LINE COUNT: 00746

**Organizational Characteristics of Intensive Care Units Related to  
Outcomes of Abdominal Aortic Surgery.**  
... Breslow, Michael J ...

... Rosenfeld, Brian A

**ABSTRACT:** The way some **intensive care** units are run may have an impact on patient outcome. Researchers analyzed organizational characteristics of 39 **intensive care** units (ICUs) in Maryland and linked this to mortality rates among 2,987 patients who were treated in a Maryland **ICU** after surgery on their abdominal aorta. In- **hospital** mortality rates ranged from zero to 66%. Mortality rates were two to three times lower in ICUs that had an **ICU** doctor who made rounds every day to check on patient care. Resource use was lower...

... Timothy Evans, MD; John Heffner, MD; Norman Paradis, MD.

Context Morbidity and mortality rates in **intensive care** units (ICUs) vary widely among institutions, but whether **ICU** structure and care processes affect these outcomes is unknown.

Objective To determine whether organizational characteristics...

...clinical and economic outcomes for abdominal aortic surgery patients who typically receive care in an **ICU** .

Design Observational study, with patient data collected retrospectively and **ICU** data collected prospectively.

Setting All Maryland hospitals that performed abdominal aortic surgery from 1994 to 1996.

Patients and Participants We analyzed **hospital** discharge data for patients in nonfederal acute care hospitals in Maryland who had a principal ...

...abdominal aortic surgery from January 1994 through December 1996 (n = 2987). We obtained information about **ICU** organizational characteristics by surveying **ICU** medical directors at the 46 Maryland hospitals that performed abdominal aortic surgery. Thirty-nine (85%) of the **ICU** directors completed this survey.

Main Outcome Measures In- **hospital** mortality and **hospital** and **ICU** length of stay.

Results For patients undergoing abdominal aortic surgery, in- **hospital** mortality varied among hospitals from 0% to 66%. In multivariate analysis adjusted for patient demographics, comorbid disease, severity of illness, **hospital** and surgeon volume, and **hospital** characteristics, not having daily rounds by an **ICU** physician was associated with a 3-fold increase in in- **hospital** mortality (odds ratio (OR), 3.0; 95% confidence interval (CI), 1.9-4.9). Furthermore, not having daily rounds by an **ICU** physician was associated with an increased risk of cardiac arrest (OR, 2.9; 95% CI...

...OR, 2.0; 95% CI, 1.0-4.1). Not having daily rounds by an **ICU** physician, having an CU nurse-patient ratio of less than 1:2, not having monthly...

...ICUs are related to differences among hospitals in outcomes of abdominal aortic surgery. Clinicians and **hospital** leaders should consider the potential impact of **ICU** organizational characteristics on outcomes of patients having high-risk operations.

MORBIDITY AND MORTALITY rates in **intensive care** units (ICUs) vary

widely among institutions. (1-3) This variation may be related to differences in **ICU** structure and care processes. (4-9) To assess and improve the quality of care in ICUs, it is necessary to understand how **ICU** structure and care processes are related to clinical and economic outcomes. (10-13) We hypothesize...

...outcomes for patients undergoing high-risk surgical procedures that typically require postoperative care in an **ICU**.

Abdominal aortic surgery is a relatively common procedure that is performed in a variety of acute care hospitals with different **ICU** organizational characteristics. Patients admitted for abdominal aortic surgery routinely require **ICU** admission because of high postoperative morbidity and mortality. (14-16) Patients undergoing abdominal aortic surgery...

...to determine whether differences in organizational characteristics of ICUs were associated with differences in in- **hospital** morbidity and mortality, **hospital** length of stay, and **ICU** days for abdominal aortic surgery patients.

#### METHODS

##### Patient Data

Following approval from our institutional review...

...the patient's age, sex, race, nature of admission, operating physician, vital status at discharge, **hospital** length of stay, **ICU** days, and codes from the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9...

...information on all patients aged 30 years or older who were discharged from a Maryland **hospital** between January 1994 and December 1996 with a principal procedure code for abdominal aortic surgery...

...blood vessel (ICD-9-CM code 902). Our study had 3 primary outcome variables: in- **hospital** mortality, **hospital** length of stay, and **ICU** days. We obtained information about complications and comorbid diseases using the secondary diagnosis and procedure...

...ICD-9-CM prior to data abstraction for complications likely to be associated with in- **hospital** mortality; these were coded as dichotomous variables.

We adjusted for comorbid diseases, severity of illness, and **hospital** and surgeon volumes. We selected the Romano-Charison comorbidity index to identify potentially important comorbid the volume of aortic surgery performed by each **hospital** and each surgeon in the database.

##### **ICU** Data

We developed a questionnaire to obtain information about organizational characteristics of ICUs that provide care to abdominal aortic surgery patients. To identify specific **ICU** issues that might be relevant to the care of such patients, we used a previously developed questionnaire about **ICU** organization and staffing. (22) The questionnaire used in our study had 32 items that evaluated **ICU** physician staffing, nurse staffing, and care processes. We established content validity by having the instrument reviewed independently by 5 **intensive care** physicians to determine if each question captured the intended domain.

##### Data Collection

We identified the **ICU** directors at the 46 Maryland hospitals that were recorded in the HSCRC database as having performed abdominal aortic surgery during our target period. For hospitals with more than 1 **ICU**, we identified the director of the **ICU** that cared for abdominal aortic surgery patients. We mailed each **ICU** director a letter explaining our study. One week later we mailed the, and 2 weeks...



...questionnaire. Six weeks after the initial questionnaire mailing, the principal investigator (P.P.) called the **ICU** directors at nonresponding hospitals and encouraged them to respond. We linked our survey data to HSCRC data, but we excluded the names of hospitals and their **ICU** directors from the combined database used to conduct our analysis. The data abstractor was blinded to the **hospital** name, **ICU** characteristics, and patient outcome.

#### Statistical Analysis

We performed a descriptive analysis of **ICU** characteristics (TABLE 1), patient characteristics (TABLE 2), patient outcomes (in- **hospital** mortality, **hospital** length of stay, and **ICU** days) and medical and surgical complications and interventions (TABLE 3).

We performed bivariate analysis to...

...regression to evaluate the association between categorical dependent variables and continuous independent variables. We modeled **hospital** and surgeon volume as dichotomous variables, using a Lowess smoothing curve, (23) and defined low...

...were independently related to each outcome variable. In the second stage, we sought to identify **ICU** characteristics that were independently related to each outcome variable after adjusting for differences in patient ...

...risk for an outcome, including the primary Outcome variables and complications, was clustered within a **hospital**, we obtained robust variance estimates and used multilevel modeling to evaluate the data hierarchically (characteristics...

...less than)8 vs (greater than or equal to)8 cases per ye ar), and **hospital** volume ((less than)36 vs (greater than or equal to)36 cases per year). Thresholds for surgeon and **hospital** volume are consistent with previously published Literature. (14)

We used multiple logistic regression to evaluate the relationship between **ICU** and patient characteristics and the categorical outcome variables for in- **hospital** mortality and complications. We used multiple linear regression to evaluate the relationship between **ICU** and patient characteristics and the continuous dependent variables for **hospital** length of stay and **ICU** days. To meet the assumption of normality of the linear regression model, we performed a log transformation on **hospital** length of stay and **ICU** days. We evaluated the effect of the log transformation by using the residual plot, the...

...5.0 software (Stata Corp, College Station, Tex) to perform all calculations.

#### RESULTS

##### Patient and **ICU** Characteristics

We received completed questionnaires from the **ICU** directors at 39 (85%) of the 46 hospitals that performed abdominal aortic surgery during the...

...16% for arterial embolism and thrombosis; and 3% for complications of a surgical procedure.

##### In- **Hospital** Mortality

The in- **hospital** mortality rate varied among hospitals from 0% to 66%. In the bivariate analysis, a number of **ICU** characteristics were associated with increased risk of in- **hospital** mortality after abdominal aortic surgery. Odds ratios (ORs) and 95% confidence intervals (CIs) for these characteristics included not having a full-time **ICU** medical director (OR, 2.1; 95% CI, 1.2-3.5), having less than 50% of **ICU** attendings certified in **critical care** (OR, 2.0; 95% CI, 1.4-3.0), not baying daily rounds by an **ICU** physician (OR, 3.0; 95% CI, 2.1-4.3), and having a decreased **ICU** nurse-patient ratio in the evening (OR, 1.9; 95% CI, 1.2-3.0). The other **ICU** characteristics were not associated with in-

**hospital** mortality.

In the multivariate analysis, (TABLE 4), not having daily rounds by an **ICU** physician vs having daily rounds by an **ICU** physician was independently associated with an increased risk of in- **hospital** mortality (OR, 3.0; 95% CI, 1.9-4.9).

#### Complication Analysis

A number of postoperative complications from our preselected list were independently associated with increased in- **hospital** mortality after abdominal aortic surgery. These included acute myocardial infarction (OR, 10.6; 95% CI...

...occurrence of these postoperative complications in the abdominal aortic surgery cases.

To explore how an **ICU** characteristic might be related to in- **hospital** mortality, we examined the association between complications and the **ICU** characteristic significantly associated with in- **hospital** mortality in the multivariate analysis. After adjusting for patient characteristics, **hospital**, and surgeon volume, we found that lack of daily rounds by an **ICU** physician was independently associated with an increased risk of cardiac arrest (OR, 2.9; 95...

...4.1), but was not associated with an increased risk of surgical complications (Table 3).

#### **Hospital** Length of Stay

In the bivariate analysis, **ICU** characteristics associated with increased **hospital** length of stay included not having a full-time **ICU** medical director (mean increase, 10%; 95% CI, 4%-16%), having an **ICU** nurse-patient ratio of less than 1:2 during the evening (mean increase, 17%; 95% CI, 1%-35%), not having monthly review of **ICU** morbidity and mortality (mean increase, 18%; 95% CI, 8%-27%), and routinely extubating aortic surgery patients...

...mean increase, 23%; 95% CI, 8%-40%).

In the multivariate analysis, shown in Table 4, **ICU** characteristics independently associated with increased **hospital** length of stay for abdominal aortic surgery cases were having an **ICU** nurse-patient ratio of less than 1:2 in the evening (mean increase, 20%; 95% CI, 7%-33%), not having monthly review of **ICU** morbidity and mortality (mean increase, 15%; 95% CI, 4%-25%), and having aortic surgery patients...

...the operating room (mean increase, 11%; 95% CI, 2%-21%). After adjusting for patient characteristics, **hospital** volume, and surgeon volume, we found that routinely extubating patients in the operating room was...

...2.1) and postoperative pulmonary complications (OR, 1.9; 95% CI, 1.7-2.3).

#### **ICU** Days

In the bivariate analysis, the **ICU** characteristics associated with increased **ICU** days included not having daily rounds by an **ICU** physician (mean increase, 65%; 95% CI, 35%-96%), having the surgeon or both the surgeon and **ICU** physician manage the patient vs having the **ICU** physician manage the patient in the **ICU** (mean increase, 39%; 95% CI, 18%-55%), and having an **ICU** nurse-patient ratio of less than 1:2 during the day (mean increase, 29%; 95% CI, 1%-68%).

In the multivariate analysis, as shown in Table 4, the **ICU** characteristics independently associated with increased **ICU** days for abdominal aortic surgery cases included not having daily rounds by an **ICU** physician (mean increase, 83%; 95% CI, 48%-126%), and having an **ICU** nurse-patient ratio of less than 1:2 during the day (mean increase, 49%; 95% CI, 17%-91%).

#### **Hospital** and Surgeon Volume

Surgeons who performed fewer than 8 cases per year had a higher mean in **hospital** mortality rate than surgeons who performed 8 or more (10% vs

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5%;  $P = .003$ ). However...

...differences in patient characteristics using multivariate logistic regression, there was no significant difference in in- **hospital** mortality between surgeons who performed fewer than 8 and those who performed 8 or more...

...fewer than 36 cases of abdominal aortic surgery per year had a higher mean in- **hospital** mortality rate than hospitals that had 36 or more cases per year (8% vs 5%...

...that hospitals that had fewer than 36 cases per year had a significantly higher in- **hospital** mortality rate than hospitals that had 36 or more. As shown in Table 4, **hospital** volume also was inversely associated with in- **hospital** mortality after adjusting for differences in both **ICU** and patient characteristics.

### COMMENT

This study demonstrates that there is significant variation in the outcomes of abdominal aortic surgery patients and significant variation in **ICU** organizational characteristics in Maryland hospitals that perform this relatively common surgery. More importantly, our results indicate that **ICU** organizational characteristics are related to differences in in- **hospital** mortality, **ICU** days, and **hospital** length of stay. Such information may provide direction regarding ways to further improve the outcomes...

...aortic aneurysm patients, especially octogenarians, is good and supports surgery, (27) strategies to reduce in- **hospital** mortality become increasingly important.

Daily rounds by an **ICU** physician were associated with a 3-fold reduction in in- **hospital** mortality for abdominal aortic surgery patients. This finding is consistent with an emerging body of evidence that suggests using full-time **intensive care** physicians can reduce in- **hospital** mortality. (28,29) We found that daily rounds by an **ICU** physician were associated with reduced risk of several specific medical complications and interventions that an...

...affect but were not associated with reduced risk of surgical complications. Daily rounds by an **ICU** physician may be a marker for team care, and this model can be widely applied...

...for detecting differences because they included many patients with a relatively low risk of in- **hospital** mortality and adjusted for differences in risk across patient populations, which may distort the relationship between **ICU** organizational characteristics and outcomes. (1,3,30)

We also found that variation in organizational characteristics...

...with differences in resource use for patients undergoing abdominal aortic surgery in Maryland. A decreased **ICU** nurse-patient ratio during the day or evening was associated with increased **ICU** days and **hospital** length of stay, respectively. In addition, monthly review of **ICU** morbidity and mortality was associated with decreased **hospital** length of stay, while routinely extubating these patients in the operating room was associated with increased **hospital** length of stay. To further explore this relationship, we found that routine extubation was independently...

...complications. These results are consistent with several small studies that showed that the addition of **ICU** specialists decreased **ICU** resource use. (10-13,31)

Daily rounds by an **ICU** physician may be as important as the experience of the surgeon performing a high-risk...

...Although surgeon volume was not significantly related to outcomes after adjusting for patient characteristics, increased **hospital** volume was

associated with better outcomes for abdominal aortic surgery patients. If the vast majority...

...procedure have sufficient experience, the best way to improve outcomes may be to improve postoperative ICU care. It is concerning that hospital volume was independently associated with in-hospital mortality and 60% (n = 1793) of patients were operated on at low-volume hospitals. This is an area worthy of further study.

A closed ICU requires full-time, qualified critical care physicians and the commitment from both physicians and administrators to reorganize the ICU. We did not attempt to classify ICUs as open vs closed because these terms are...

...coding the types of outcome variables used in this analysis. (34) In this study, the ICU data were prospective in that we collected the data, while the patient data were retrospective...

...this potential bias should have been minimized by our keeping the data abstraction blinded to hospital name, ICU characteristics, and patient outcome. However, we found no evidence of systematic differences in coding of comorbid diseases between hospitals with and without daily rounds by an ICU physician. The percentage of patients with chronic renal disease and mild liver disease (complications associated with in-hospital mortality) were exactly the same at hospitals with and without daily rounds by an ICU physician (4% and 1%, respectively), while prior myocardial infarction was coded more frequently at hospitals without daily rounds by an ICU physician and severe diabetes mellitus was coded more frequently at hospitals with daily rounds. Therefore...

...results because coding of comorbid diseases at hospitals with and without daily rounds by an ICU physician is not a confounding variable. Additionally, random misclassification of comorbid diseases would bias our ...

...by misclassification of complications. We reviewed a random sample of 25 medical records from 1 hospital and found the coding of complications associated with in-hospital mortality to be 96% accurate. We helped establish construct validity for the coding of complications by evaluating only complications that were independently associated with in-hospital mortality. (35) Additionally, the bias from coding of complications is likely minimal because the association between daily rounds by an ICU physician and complications was consistent across several medical complications and interventions that an intensivist would...to account for severity of illness relatively well, as evidenced by their ORs for in-hospital mortality. Most patients (91%) had unruptured aneurysms and would be expected to have normal physiology...

...significantly increased.

The third limitation is that we did not adjust for differences in pre-ICU care. We were not able to adjust for changes in surgical technique over time; however...

...available during the study. Moreover, there is no known association between surgical approach and in-hospital mortality. We were also not able to adjust for the type of anesthesia patients received. However, most of the differences in pre-ICU care would affect surgical complications more than medical complications, and we were more interested in the association between ICU organization and medical complications.

A fourth limitation is our inability to adjust for differences in post-ICU care. However, we did adjust for hospital volume and used multilevel modeling that may account for some of the differences in post-ICU care. Although the data set used in this study does not provide information about ICU mortality, we believed the use of in-hospital

mortality as an outcome would be less biased than **ICU** mortality because **ICU** mortality is affected by decisions to discharge patients from the **ICU**. We did not control for discharge decisions and, thus, cannot associate the location of death...

...in which care was received.

The fifth limitation is the reliability and validity of our **ICU** survey instrument. We relied on the **ICU** directors to describe the characteristics of their ICUs. Most questions, including daily rounds by an **ICU** physician, were derived from a previously validated questionnaire.

(3) Because most ICUs have 1 director...

...We tested the interrater reliability on 2 sets of intensivists (the 2 codirectors of 1 **ICU** and the director and staff intensivist at another) and found 100% agreement and 97% agreement...

...the questions. Our validity evaluation focused on content validity that we established by having 5 **intensive care** physicians independently review the instrument. We assumed the responding **ICU** medical directors would answer accurately, since we preserved **hospital** confidentiality. The sixth limitation is that the survey was administered at the end of the...

...years for which we had patient data, It is unlikely that hospitals dramatically changed their **ICU** organization during this period, but if this occurred, we would have been less likely to find an association between **ICU** organizational characteristics and outcome. The final limitation is that we focused on 1 surgical procedure...

...aortic surgery in Maryland.

Despite these limitations, our study results have significant implications for clinicians, **hospital** administrators, and policymakers because they point to several aspects of **ICU** care that potentially could be modified to decrease in- **hospital** mortality, complications, and length of stay of postoperative care for high-risk patients. The results suggest that decreasing **ICU** nursing staff below a certain level may lead to increased costs of care and length...

...is needed to determine whether implementation of specific measures, such as daily rounds by an **ICU** physician, can decrease morbidity and mortality, as well as length of stay, for high-risk...

...are not in place. Meanwhile, patients should consider how ICUs are organized when choosing a **hospital** in which to have a major surgery.

Author Affiliations: Departments of Anesthesiology! **Critical Care** Medicine (Drs Pronovost, Dorman, Breslow, Rosenfeld, and Lipsett), Medicine (Drs Breslow Rosenfeld, and Bass), Surgery clinical **intensive care** unit services to hospitals. Drs Pronovost and Dorman are consultants for ICUSA. Funding/Support: Dr...

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#### ICU

Characteristics for Maryland Hospitals Responding to Survey and Number of Abdominal Aortic Surgery Patients Cared for in an **ICU** With That Characteristic, 1994-1996 (\*)

# Search Report from Ginger D. Roberts

## Hospitals, No. (%)

ICU Characteristics  
 ICU physician staffing  
 (less than)50% of ICU attendings 29 (74)  
 certified in **critical care**  
 No physician present in the ICU in 23 (59)  
 the evening  
 Residents assigned to the ICU 14 (36)  
 Residents assigned to the ICU 10 (26)  
 provide care for aortic surgery  
 patients  
 No daily rounds by an ICU physician 5 (13)  
 ICU physician manages aortic 2 (5)  
 surgery patients in the ICU (+)  
 No ICU medical director 2 (5)  
 ICU nurse staffing  
 Nurse-patient ratio (less than)1:2 14 (36)  
 during the evening  
 Nurse...

...8 (21)  
 during the day  
 Decreased nurse-patient ratio in 7 (18)  
 the evening  
 No ICU nurse manager 1 (3)  
 ICU care processes  
 Aortic surgery patients not one 33 (85)  
 critical pathway  
 ICU has written admission and 18 (46)  
 discharge criteria  
 ICU staff review morbidity and 13 (33)  
 mortality monthly  
 Aortic surgery patients are 13 (33)  
 routinely extubated in the  
 operating room

## Patients, No. (%)

ICU Characteristics  
 ICU physician staffing  
 (less than)50% of ICU attendings 1824 (74)  
 certified in **critical care**  
 No physician present in the ICU in 1561 (61)  
 the evening  
 Residents assigned to the ICU 894 (34)  
 Residents assigned to the ICU 652 (25)  
 provide care for aortic surgery  
 patients  
 No daily rounds by an ICU physician 472 (19)  
 ICU physician manages aortic 177 (8)  
 surgery patients in the ICU (+)  
 No ICU medical director 99 (4)  
 ICU nurse staffing  
 Nurse-patient ratio (less than)1:2 2128 (82)  
 during the evening  
 Nurse...

...1658 (64)  
 during the day  
 Decreased nurse-patient ratio in 528 (25)  
 the evening  
 No ICU nurse manager 82 (3)

# Search Report from Ginger D. Roberts

ICU care processes  
 Aortic surgery patients not one critical pathway 2196 (93)  
 ICU has written admission and discharge criteria 1225 (53)  
 ICU staff review morbidity and mortality monthly 1168 (49)  
 Aortic surgery patients are routinely extubated in the operating room 749 (33)

(\*) ICU indicates intensive care unit. Thirty-nine hospitals responded to the survey. Some ICU directors did not complete the entire survey. Percentages are for only those questions completed.

(+.) The ICU physician manages aortic surgery patients while patients are in the ICU as opposed to either the surgeon alone or both the surgeon and the ICU physician.

Characteristics of Abdominal Aortic Surgery Patients (N = 2987) From Responding and Nonresponding Hospitals 1994-1996

Responding  
Hospitals

(n = 2606 Patients)

Hospital characteristics  
Hospitals represented, No.

39

Bed size, median (range)  
Cases of abdominal...

284 (76-850)

...whose surgeons performed (less than) 8 cases of abdominal aortic surgery per year, % 39  
 In-hospital mortality rate for abdominal aortic surgery cases, mean (SD) 7.3 (3.8)

Hospital length of stay for abdominal aortic surgery cases, median (range), d 8 (0-171)

Intensive care unit stay for abdominal aortic surgery cases, median (range), d 2 (0-118)

Patient characteristics...

1

...Dementia  
 Metastatic solid tumor  
 Severe liver disease

0

0

Nonresponding  
Hospitals

(n = 381 Patients)

Hospital characteristics  
Hospitals represented, No.

7

Bed size, median (range)  
Cases of abdominal...

185 (64-460) (\*)

...whose surgeons performed (less than) 8 cases of abdominal aortic surgery per year, % 43  
 In-hospital mortality rate for abdominal aortic surgery cases, mean (SD) 5.0 (6.3)



# Search Report from Ginger D. Roberts

**Hospital**  
length of stay for abdominal aortic 7.6 (0-37)  
surgery cases, median (range), d  
**Intensive care**  
unit stay for abdominal aortic 2 (0-37)  
surgery cases, median (range), d  
Patient characteristics...

...in the Romano-Charlson index. (17)

Risk of Postoperative Complications With NoDaily Rounds by an **ICU**  
Physician  
for Abdominal Aortic Surgery Patients in Maryland, 1994-1996 (\*)

Complications Patients With  
Complication, %  
(n...  
2.0  
...Platelet transfusion

Complications OR (95% CI) of Without vs  
Physician With Daily Rounds of **ICU**  
Medical complications 1.9 (0.5-7.8)  
Pulmonary insufficiency after  
procedure  
Cardiac complications...6) 6.4 (3.2-12.4) (+)  
Platelet transfusion

(\*)The complications associated with increased in- **hospital**  
mortality in abdominal aortic surgery patients were included in this  
analysis. For each complication, the...

...sex, race, ruptured/unruptured aneurysm, elective/urgent/emergent  
admission, comorbid diseases in Romano-Charlson index, **hospital** volume,  
and surgeon volume. **ICU** indicates **intensive care** unit: OR, odds  
ratio; and CI, confidence interval.

(+.)Data are statistically significant at P(less...

...environmental events, circumstances, or conditions as the cause of an  
injury.

Relationship of Patient and **ICU** Characteristics  
to In- **Hospital** Mortality, **Hospital** Length of Stay,  
and **ICU** Days for Abdominal Aortic Surgery Patients  
in Maryland, 1994-1996 (\*)

In- **Hospital** Mortality,  
Adjusted OR (95% CI)  
Patient characteristics  
Demographic characteristics  
Age (+) 1.1 (1.06 to...  
...0.4 to 1.5)  
Malignancy 1.1 (0.3 to 3.4)  
Dementia II  
**Hospital** volume (less than)36 year (n) 1.7 (1.3 to 2.3) (++)  
**ICU** characteristics (#)  
Physician characterists  
No daily rounds by an **ICU** 3.0 (1.9 to 4.9) (++)  
physican  
(less than)50% of **ICU** attendings 1.2 (0.8 to 1.7)

# Search Report from Ginger D. Roberts

certified in **critical care**

Nurse characterists ...

Nurse-patient ratio (less than)1:2 in the evening ...

Nurse-patient ratio (less than)1:2 during the day ...

ICU care processes ...

ICU staff review. morbidity and mortality monthly ...

Aortic surgery patients routinely extubated in operating room

Estimated Increase in  
**Hospital** Length of Stay,  
Adjusted % (95% CI)

Patient characteristics

Demographic characteristics  
Age (+) 1 (1 to 1...

...infarction -9 (-14 to -3) (++) 9 (-1 to 20)  
Malignancy -13 (-34 to 16)  
Dementia 6 (-3 to 15)

**Hospital** volume (less than)36 year (n)  
ICU characteristics (#) 6 (-3 to 15)

Physician characterists ...

No daily rounds by an ICU physican ...

(less than)50% of ICU attendings certified in **critical care**

Nurse characterists 20 (7 to 33) (++)

Nurse-patient ratio (less than)1:2 in the evening ...

Nurse-patient ratio (less than)1:2 during the day

ICU care processes -15 (-25 to -4) (++)

ICU staff review. morbidity and mortality monthly 11 (2 to 21) (++)

Aortic surgery patients routinely extubated in operating room

Estimated  
Increase in **ICU** Days,  
Adjusted % (95% CI)

Patient characteristics

Demographic characteristics  
Age (+) 1 (1 to 1.1) (++)  
Female...

...infarction -2 (-14 to 9) 6 (-10 to 32)  
Malignancy -39 (-53 to -12) (++)  
Dementia -22 (-43 to 0)

**Hospital** volume (less than)36 year (n)  
ICU characteristics (#)

Physician characterists 83 (48 to 126) (++)

No daily rounds by an ICU physican ...

(less than)50% of ICU attendings certified in **critical care**

Nurse characterists ...  
Nurse-patient ratio (less

Search Report from Ginger D. Roberts

than)1:2 in the evening  
Nurse-patient ratio (less 49 (17 to 91) (++)  
than)1:2 during the day  
ICU care processes  
ICU staff review. morbidity and ...  
mortality monthly  
Aortic surgery patients ...  
routinely extubated in  
operating room

(\*) ICU indicates **intensive care** unit; OR, odds ratio for risk of in- **hospital** mortality with vs without a given characteristic; and CI, confidence interval.

(+.) Age is modeled as...

...n.) Cut point was chosen from Lowess smoothing curve.

(#.) Ellipses indicate that the variable for " ICU physician manages patient" was dropped due to correlation with the variable for "(less than)50% of ICU attendings certified in **critical care** ." Analysis for in- **hospital** mortality was performed using logistic regression. Analysis for **hospital** charges, length of stay, and ICU days was performed with linear regression using the log of these variables. We took the...

DESCRIPTORS: **Intensive care** units...

5/3,K/4 (Item 4 from file: 148)  
DIALOG(R) File 148:Gale Group Trade & Industry DB  
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09501356 SUPPLIER NUMBER: 19331760 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Perioperative maintenance of normothermia reduces the incidence of morbid cardiac events: a randomized clinical trial.**

Frank, Steven M.; Fleisher, Lee A.; **Breslow, Michael J.** ; Higgins, Michael S.; Olson, Krista F.; Kelly, Susan; Beattie, Charles  
JAMA, The Journal of the American Medical Association, v277, n14, p1127(8)  
April 9, 1997

ISSN: 0098-7484 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 6814 LINE COUNT: 00594

... **Breslow, Michael J**

...AUTHOR ABSTRACT: care (hypothermic group) to additional supplemental warming care (normothermic group). Setting.--Operating rooms and surgical **intensive care** unit at an academic medical center. Subjects.--Three hundred patients undergoing abdominal, thoracic, or vascular...

TEXT:

...8) increased surgical bleeding, (9) increased incidence of wound infection, and a longer duration of **hospital** stay. (10) In addition, it has recently been recognized that even mild hypothermia (0.5...  
... Clinical Investigation and after written informed consent was obtained, 300 patients at The Johns Hopkins **Hospital** , Baltimore, Md, were enrolled between November 1992 and November 1995 (Figure 1). Patients were considered...

...peripheral vascular, abdominal, or thoracic surgical procedures, and (3) scheduled for postoperative admission to the **intensive care** unit ( ICU ). The age criterion was used to preselect patients at risk for both perioperative cardiovascular complications...were compared at the following times: preoperatively, at the end of surgery, on admission to ICU , at 30, 60, 90, and 180 minutes postoperatively, and on the morning of the first...

...reference on the monitor was confirmed with electronic calibration preoperatively and on admission to the **ICU** .

Upper and lower limits for systolic blood pressure were determined before surgery on the basis...temperature was 1.3 degrees C lower in the hypothermic group on admission to the **ICU** immediately after surgery ( $P<.001$ ). The proportion of patients who experienced shivering at any time

...IV morphine requirement, requirement for antihypertensive therapy, hours of tachycardia, length of stay in the **ICU** or **hospital** , or death in the **hospital** . Four patients (2 in each treatment group) died during their **hospital** stay, and all deaths occurred on the fifth **hospital** day or beyond. One of these deaths was from an ischemic cardiac event and the... the evening of the day of surgery. This patient recovered and was discharged from the **hospital** .

There were 21 episodes of intraoperative ventricular tachycardia in 13 patients and 18 episodes of...

...events compared with those without events ( $P=.01$ ). The median length of stay in the **ICU** was 5.5 hours longer for patients suffering morbid cardiac events than for those without events ( $P=.002$ ). Length of stay in the **hospital** was not prolonged for patients who experienced events.

#### COMMENT

The results demonstrate that the perioperative...may be related to the increased physician-to-patient ratio that was implemented in our **ICU** about the time this study began.

The clinical significance of ventricular tachycardia in the perioperative...

...whose patients participated in the study. We also thank the nursing staff in the anesthesia **intensive care** and surgical **intensive care** units, the house staff who cared for patients enrolled in the study, and Constance Bourke...The relationship between postoperative anemia and cardiac morbidity in high risk vascular patients in the **ICU** . Crit Care Med. 1993;21:860-866.

20. Tofler GH, Brezinski DA, Shafer AI, et...prognostic importance. Am Heart J. 1992;123:73-81.

From the Departments of Anesthesiology and **Critical Care Medicine** (Drs Frank, Fleisher, and Breslow), Medicine (Drs Fleisher and Breslow), and Surgery (Dr Breslow...

...Nashville, Term (Drs Higgins and Beattie).

Reprints: Steven M. Frank, MD, Carnegie 442, Johns Hopkins **Hospital** , 600 N Wolfe St, Baltimore, MD 21287 (e-mail: sfrank@welchlink.welch.jhu.edu).

5/3,K/5 (Item 5 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB  
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03940966 SUPPLIER NUMBER: 07694769 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Epidural morphine decreases postoperative hypertension by attenuating sympathetic nervous system hyperactivity.**

Breslow, Michael J. ; Jordan, Desmond A.; Christopherson, Rose;  
Rosenfeld, Brian ; Miller, Clair F.; Hanley, Daniel F.; Beattie, Charles;  
Traystman, Richard J.; Rogers, Mark C  
JAMA, The Journal of the American Medical Association, v261, n24, p3577(5)  
June 23, 1989

ISSN: 0098-7484 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 4191 LINE COUNT: 00369

Breslow, Michael J ...

... Rosenfeld, Brian

... and recorded. Arterial blood pressure and heart rate at the time of admission to the **hospital** were used as baseline data. All patients received oral diazepam ( $\leq 10$  mg) and intramuscular morphine...

...mg) to ensure adequate analgesia in the immediate postoperative period. Postoperatively, nurses in the surgical **intensive care** unit were instructed to administer parenteral morphine as needed to keep patients comfortable, as is...

...serum catecholamine and vasopressin levels were measured at the time of admission to the surgical **intensive care** unit and at 6-hour intervals for the first 24 hours postoperatively. Antihypertensive therapy began...

...to 10.

This protocol was approved by the Human Studies Committee of The Johns Hopkins **Hospital**, Baltimore, Md.

ASSAYS

Epinephrine and Norepinephrine

The blood plasma assay of epinephrine and norepinephrine is...12 patients.

Table 1. -- Preoperative and Intraoperative Data

[TABULAR DATA OMITTED]

Data regarding the surgical **intensive care** unit course for the first 24 hours following surgery are shown in Table 2. Patients...

...a beta-adrenergic receptor antagonist. Heart rate was similar in both groups.

Table 2. -- Surgical **Intensive Care** Unit Data

[TABULAR DATA OMITTED]

Plasma norepinephrine, epinephrine, and arginine vasopressin levels are shown in...

...were increased twofold to threefold in both groups at the time of admission to the **intensive care** unit. In the saline group, norepinephrine levels remained at three times preinduction levels for the 24 hours following admission to the surgical **intensive care** unit. In contrast, norepinephrine levels in the morphine group returned to control levels by 6...

...groups (to 300% to 700% of control level) at the time of admission to the **intensive care** unit, but by 6 hours following surgery had returned to preinduction levels. Epidural morphine had...

...levels were increased similarly in both groups at the time of admission to the surgical **intensive care** unit (40 to 60 fmol/mL) and remained elevated, but at lower levels (5 to...

...to extubation. Both groups had similar temperatures at the time of admission to the surgical **intensive care** unit (approximately 35 degrees C rectally) and warmed at equivalent rates. Patients who received epidural

...

...saline groups, respectively. One patient in the epidural saline group developed complications that required a **hospital** stay of 31 days.

COMMENT

The results of the present study indicate that epidural morphine... such as myocardial infarction, is unknown and warrants further investigation.

From the Departments of Anesthesiology/ **Critical Care** Medicine

Search Report from Ginger D. Roberts

(Drs Breslow, Jordan, Christopherson, Rosenfeld, Miller, Beattie, Traystman, and Rogers) and Neurology (Dr Hanley of Anesthesiology, College of Physicians and Surgeons, Columbia-Presbyterian **Hospital**, New York, NY.

Reprint requests to the Department of Anesthesiology/ **Critical Care** Medicine, The Johns Hopkins **Hospital**, 600 N Wolfe St, Baltimore, MD 21205 (Dr Breslow).

We thank the surgical **intensive care** unit house staff and nursing staff for help in collecting plasma samples; Kenneth L. Kubos...  
CAPTIONS: Preoperative and intraoperative data. (table); Surgical **intensive care** unit data. (table); Arterial blood pressure before induction of anesthesia & after surgery. (graph); Arterial plasma...

5/3,K/6 (Item 1 from file: 35)

DIALOG(R)File 35:Dissertation Abs Online  
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01311040 ORDER NO: AAD93-24850

**DECISIONMAKING COMPETENCE OF THE MENTALLY ILL: A LONGITUDINAL ANALYSIS OF TREATMENT DECISIONMAKING**

Author: **ROSENFELD, BARRY DAVID**

Degree: PH.D.

Year: 1992

Corporate Source/Institution: UNIVERSITY OF VIRGINIA (0246)

Source: VOLUME 54/05-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 2769. 155 PAGES

Author: **ROSENFELD, BARRY DAVID**

...acutely ill, and when their symptoms are in remission, to a comparison group of psychiatric **hospital** employees.

A paired comparison paradigm was used to enable subjects to choose from among eight...

5/3,K/7 (Item 1 from file: 65)

DIALOG(R)File 65:Inside Conferences  
(c) 2003 BLDSC all rts. reserv. All rts. reserv.

03878718 INSIDE CONFERENCE ITEM ID: CN040769559

**Unexplained Variation in Hospital ICU Utilization**

**Breslow, M. J.** ; Herbert, R.; Pronovost, P.; Foster, D.

CONFERENCE: American Society of Critical Care Anesthesiologists-Annual meeting; 14th

ANESTHESIOLOGY-PHILADELPHIA THEN HAGERSTOWN-, 2001; VOL 95; NO 3; SUPPL P: B15

Lippincott Williams &amp; Wilkins, 2001

ISSN: 0003-3022

LANGUAGE: English DOCUMENT TYPE: Conference Preprinted abstracts

CONFERENCE SPONSOR: American Society of Critical Care Anesthesiologists

CONFERENCE LOCATION: New Orleans, LA 2001; Oct (200110) (200110)

**Unexplained Variation in Hospital ICU Utilization**

**Breslow, M. J.** ; Herbert, R.; Pronovost, P.; Foster, D.

DESCRIPTORS: **critical care** anesthesiologists; ASCCA; anesthesiologists

5/3,K/8 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX  
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Search Report from Ginger D. Roberts

013823627    \*\*Image available\*\*  
WPI Acc No: 2001-307839/200132  
XRPX Acc No: N01-220329

**Continuous health car service management system for telemedicine network,  
has remote command center that monitors remote health care system  
continuously round the clock and week**

Patent Assignee: VISICU INC (VISI-N); ICUSA (ICUS-N)

Inventor: **BRESLOW M ; ROSENFELD B A M D**

Number of Countries: 093    Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200079466	A2	20001228	WO 2000US17405	A	20000623	200132 B
AU 200057640	A	20010109	AU 200057640	A	20000623	200132
EP 1200924	A2	20020502	EP 2000943124	A	20000623	200236
			WO 2000US17405	A	20000623	

Priority Applications (No Type Date): US 99443072 A 19991118; US 99141520 P 19990623

Patent Details:

Patent No    Kind    Lan Pg    Main IPC    Filing Notes

WO 200079466    A2 E 147    G06F-019/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY CA CH  
CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE  
KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO  
RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200057640    A    G06F-019/00    Based on patent WO 200079466

EP 1200924    A2 E    G06F-019/00    Based on patent WO 200079466

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT  
LI LT LU LV MC MK NL PT RO SE SI

Inventor: **BRESLOW M ...**

**... ROSENFELD B A M D**

Abstract (Basic):

... For computerized patient care management in remote **intensive**  
**care** units ( ICU ) and telemedicine network...

**5/3,K/9    (Item 2 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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012408346    \*\*Image available\*\*  
WPI Acc No: 1999-214454/199918  
XRPX Acc No: N99-157851

**Chest compression device for emergency medical actions**

Patent Assignee: EMERGENCY MEDICAL SYSTEMS INC (EMER-N)

Inventor: BYSTROM S R; MINER C; MOLLENAUER K H; SHERMAN D R

Number of Countries: 083    Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9909929	A1	19990304	WO 98US17502	A	19980824	199918 B
AU 9890328	A	19990316	AU 9890328	A	19980824	199930
EP 1017351	A1	20000712	EP 98942225	A	19980824	200036
			WO 98US17502	A	19980824	
US 6090056	A	20000718	US 97924555	A	19970827	200037
US 6142962	A	20001107	US 97922723	A	19970827	200059
JP 2001513399	W	20010904	WO 98US17502	A	19980824	200165
			JP 2000507323	A	19980824	

Search Report from Ginger D. Roberts

BR 9811413 A 20020213 BR 9811413 A 19980824 200220  
WO 98US17502 A 19980824

Priority Applications (No Type Date): US 97924555 A 19970827; US 97922723 A 19970827

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9909929	A1	E	43	A61H-031/00	
Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW					
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
AU 9890328	A				Based on patent WO 9909929
EP 1017351	A1	E		A61H-031/00	Based on patent WO 9909929
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
US 6090056	A			A61H-031/00	
US 6142962	A			A61H-031/00	
JP 2001513399	W		47	A61H-031/00	Based on patent WO 9909929
BR 9811413	A			A61H-031/00	Based on patent WO 9909929

5/3,K/10 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011614923 \*\*Image available\*\*

WPI Acc No: 1998-032051/ 199803

XRPX Acc No: N98-025811

**Emergency telecommunication device - transmits one of three predetermined messages to emergency operator when control circuit is activated by one of three buttons, each representing different message**

Patent Assignee: BERTOLET E E (BERT-I)

Inventor: BERTOLET E E

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5694452	A	19971202	US 96615113	A	19960314	199803 B

Priority Applications (No Type Date): US 96615113 A 19960314

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5694452	A		7	H04M-011/04	

5/3,K/11 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011511220 \*\*Image available\*\*

WPI Acc No: 1997-489134/ 199745

XRPX Acc No: N97-407531

**Programmable emergency communication system - receives signal from portable radio transmitter and automatically dials one of stored telephone numbers and reports signals to central station which determines subscriber ID, and device which initiated all, such as smoke detector**

Patent Assignee: AC CORP (ACAC-N)

Inventor: CONNOR L W; LUBIN D; MCKEITHAN T; SEUBERLING T

Number of Countries: 001 Number of Patents: 001

Patent Family:



Search Report from Ginger D. Roberts

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5673304	A	19970930	US 91763493	A	19910923	199745 B
			US 9394446	A	19930721	

Priority Applications (No Type Date): US 9394446 A 19930721; US 91763493 A 19910923

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5673304	A	32	H04M-011/04	CIP of application US 91763493	

**5/3,K/12 (Item 5 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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010789995 \*\*Image available\*\*

WPI Acc No: 1996-286948/199629

XRPX Acc No: N96-240906

**Defibrillator system for transmitting usage instructions to local memory in defibrillator - has external defibrillator, defibrillator communicator and communication network for automatically transmitting information to communication station**

Patent Assignee: HEARTSTREAM INC (HEAR-N)

Inventor: COLE C; LEVENTHAL M J; MORGAN C B; MYDYSKI S T; POWERS D

Number of Countries: 021 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9617653	A1	19960613	WO 95US15891	A	19951206	199629 B
AU 9643759	A	19960626	AU 9643759	A	19951206	199641
US 5593426	A	19970114	US 94351654	A	19941207	199709
US 5782878	A	19980721	US 94351654	A	19941207	199836
			US 97783376	A	19970113	

Priority Applications (No Type Date): US 94351654 A 19941207; US 97783376 A 19970113

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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**TELEMEDICAL EXPERT SERVICE PROVISION FOR INTENSIVE CARE UNITS  
BEREITSTELLUNG VON TELEMEDIZINISCHEN EXPERTENDIENSTEN FUR INTENSIVSTATIONEN  
SYSTEME ET PROCEDE DE FOURNITURE DE SERVICES DE SOINS INTENSIFS CONTINUS EN  
RESEAU EXPERT A PARTIR D'UN POINT OU DE POINTS DISTANTS**

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Search Report from Ginger D. Roberts

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**TELEMEDICAL EXPERT SERVICE PROVISION FOR INTENSIVE CARE UNITS**  
INVENTOR:

**ROSENFELD, Brian, A., M., D ...**

...US)

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**TELEMEDICAL EXPERT SERVICE PROVISION FOR INTENSIVE CARE UNITS**  
**SYSTEME ET PROCEDE DE FOURNITURE DE SERVICES DE SOINS INTENSIFS CONTINUS EN**  
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**TELEMEDICAL EXPERT SERVICE PROVISION FOR INTENSIVE CARE UNITS**  
Inventor(s):

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... **BRESLOW Michael**

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Detailed Description  
Claims

English Abstract

A system and method for providing continuous expert network **critical care** services from a remote location. A plurality of **intensive care** units ( **ICU** 's) with associated patient monitoring instrumentation is connected over a network to a command center...  
...intensivists 24 hours a day, 7 days a week. The intensivists are prompted to provide **critical care** by a standardized series of guideline algorithms for treating a variety of **critical care** conditions. Intensivists monitor the progress of individual patients at remote **intensive care** units. A smart alarm system provides alarms to the intensivists to alert the intensivists to...  
...analyzes individual patient information from a plurality of command centers and provides updated algorithms and **critical care** support to the command centers.

French Abstract

...reseau expert a partir d'un point distant. Une pluralite d'unites de soins intensifs ( **ICU** ) contenant des appareils de controle de patients associes est reliee par un reseau a un...

Detailed Description

... issue of the PCT Gazette.

I Title: System and Method for Providing Continuous, Expert Network **Critical Care** Services from a Remote Location(s)

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to the care of patients in **Intensive Care** Units (ICUs). More particularly this invention is a system and method for care of the...

...both on-site and remote locations.

2. Background Art

While the severity of illness of **ICU** patients over the past 15 years has increased dramatically, the level of and type of physician coverage in most ICUs has remained constant. Most **ICU** patients receive brief minutes of attention during morning rounds from physicians with limited **critical care** experience. During the remainder of the day and night, nurses are the primary caregivers, with...

...result of this mismatch between severity of illness and physician coverage is an unacceptably high **ICU** mortality rate (10% nationwide), and a high prevalence of avoidable errors that result in clinical...

...supply.

Numerous studies have shown that Intensivists (physicians who have trained and board certified in **Critical Care** Medicine) can markedly improve patient outcomes. However, only one-third of all **ICU** patients ever has an Intensivist involved in their care, and the number of Intensivists would need to increase tenfold (nationally) to provide 24-hour I coverage to all **ICU** patients. With the rapid aging of the population, this shortfall of expertise is going to...

...variation contributes to suboptimal outcomes, in both the quality and cost of care delivered to **ICU** patients.

What is needed is a redesigning of the **critical care** regimen offered to patients in an **ICU** . Rather than the consultative model where a periodic visit takes place and the doctor then...

...technology that leverages the intensivists'expertise and standardizes the care afforded to patients in an **ICU** is required. Further, continuous feedback to improve the practice of intensivists in an **ICU** is necessary to provide the intervention required to minimize adverse events. This invention seeks to...diagnostic tool, none of them provides a comprehensive method for monitoring and providing real time **critical care** at disparate **ICU** 's. In short, they are NOT designed for **critical care** . Further, none of these inventions provide for the care of a full time intensivist backed by appropriate database and decision support assistance in the **intensive care** environment.

What would be useful is a system and method for providing care for the...

...in the care of the critically. Further such a system would standardize the care in **ICU** 's at a high level and reduce the mortality rate of patients being cared for in **ICU** 's

#### SUMMARY OF THE INVENTION

The present invention provides a core business of Continuous Expert Care Network (CXCN) solution for **hospital intensive care** units (ICUs). This e-solution uses network, database, and decision support technologies to provide 24...

...a stand-alone software application that codifies evidence-based, best practice medicine for 150 common **ICU** clinical scenarios. These support algorithms are explained more fully below.

The "Command Center" model, again...

...way to a more distributed remote management model where Intensivists and other physicians can access **ICU** patients and clinicians (voice, video, data) from their office or home. In this scenario, the present invention will be available in **hospital** applications that centralize **ICU** information, and offer physicians web-based applications that provide them with real-time connectivity to...

...disclosed herein.

The present invention addresses these issues and shortcomings of the existing situation in **intensive care** , and its shortfalls via two major thrusts. First, an integrated video/voice/data network application enables continuous real-time management of **ICU** patients from a remote setting. Second, a client-server database application B integrated to the ...

...It is therefore an object of the present invention to reduce avoidable complications in an **ICU** .

It is a further object of the present invention to reduce unexplained variations in resource utilization in an **ICU** .

It is a further objective of the present invention to mitigate the serious shortage of...

...another objective of the present invention to reduce the occurrence of adverse events in an **ICU** .

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care...

...ICUs.

It is yet another objective of the present invention to reduce the cost of ICU care.

It is yet another objective of the present invention to dramatically decrease the mortality in an ICU .  
It is yet another objective of the present invention to bring information from the ICU to the intensivist, rather than bring the intensivist to the ICU .

It is a further objective of the present invention to combine tele-medical systems comprising oversee care within the ICU .

I I It is a further objective of the present invention to allow intensivists to monitor ICUs from a site remote from each individual ICU .

It is a further objective of the present invention to bring organized detailed clinical information to the intensivist, thereby providing standardized care in the ICU .

It is yet another objective of the present invention to utilize knowledge-based software to...

...remote location is manned by intensivists 24 hours a day, seven days per week. Each ICU comprises a nurse's station, to which data flows from individual beds in the ICU . Each patient in the ICU is monitored by a video camera, as well as by clinical monitors typical for the intensive care unit. These monitors provide constant real time patient information to the nurse's station, which...

...turn provides that information over a dedicated T- I (high bandwidth) line to the ICU command center/remote location. As noted earlier, the command center/remote location is remote from the ICU , thereby allowing the command center/remote location to simultaneously monitor a number of patients in...

...remote location, video monitors exist so that the intensivist can visually monitor patients within the ICU . Further, the intensivist can steer and zoom the video camera near each patient so that...

...close and generally. Audio links allow intensivists to talk to patients and staff at an ICU bed location and allow those individuals to converse with the intensivist.

Clinical data is constantly...

...advantage of the present invention is that intensivists see all patients at a plurality of ICU 's at all times. Further, there is a continuous proactive intensivist care of all patients within the ICU , thereby minimizing adverse events. Intervention is triggered 1 8 by evidence-based data-driven feedback...

...time, 24-hour a day, seven day a week intensivist care for patients in an ICU can be obtained.

Further, more timely interventions in the care of the patients can be...

...complications and adverse events. This in turn will lead to a reduced

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mortality within the **ICU** , and hence, a reduced liability cost due to the dramatic reduction in avoidable errors in health care.

By providing timely interventions, the length of stay within the **ICU** can be greatly reduced, thereby allowing more critically ill patients to be cared for in the **ICU** .

In addition, by reviewing and standardizing the care afforded to patients in an **ICU** , a more standardized practice across a variety of ICUs can be achieved. This will lead to more cost-effective care within the **ICU** , and reduced ancillary cost for the care of the critically ill.

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I The overall...

...full videoconferencing capability. In addition, computer workstations are dedicated for exclusive physician use in each **ICU** , preferably at the nurse's station.

Intensivists use the workstations to view patient information, consult...

...across the pod.

Updates and changes made to the record are available at both the **ICU** and the command center/remote location for any given patient.

Each command center/remote location contains at least three workstations: one for the intensivist, one for the **critical care** registered nurse, and one for a clerk/administrative person.

The intensivist workstation comprises separate monitors for displaying **ICU** video images of patients and/or **ICU** personnel, output from bedside monitoring equipment, patient clinical data comprising history, notes, lab reports, etc...

...upon request of the intensivist.

Remote patient management is utilized in the present invention's **critical care** program to supplement traditional onsite care. The rationale underlying the remote patient management of the...

...are inherently unstable and require continuous expert care that is not now offered in existing **ICU** monitoring regimens. Further, remote monitoring allows a single intensivist to care for patients in multiple **ICU** locations, thereby creating an efficiency that makes continuous care feasible.

Remote intensivist care of the...

...using the ceiling-mounted cameras in each room.

Command center/remote location personnel communicate with **ICU** staff through videoconferencing and through "hot phones," which are dedicated telephones directly linked between the command center/remote location and the **ICU** . These communications links are used to discuss patient care issues and to communicate when a...There may be multiple records for any given patient, since the patient may visit the **ICU** on more than one occasion. This file contains a record of each visit to an **ICU** by a patient.

Physician-patient task: Contains the task that had been defined for each patient.

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Present illness: This contains a textual description of the patient illness for the specific **ICU** visit.

Physical exam: This contains the information gathered as a result of a physical examination of the patient during the admission to the **ICU** .

3 1 Surgical fluids: This provides all the information related to the fluids provided during...

...pertaining to any surgical procedure performed on a patient while the patient is at the **ICU** .

Patient admit: This provides general information that needs to be gathered when a patient is admitted into the **ICU** .

Medical orders: This provides the general information for all types of medical orders associated with...

...a patient.

Vital sign information is also critical to the administration of care in the **ICU** . A number of different modules collect information relating to patient vital signs. For example.

Patient...

...the general information that needs to be gathered when a patient is admitted to the **ICU** .

Patient visit: This contains a record of each visit to an **ICU** by a patient.

1 8 Patient: Provides demographic information for each patient.

Vital sign header...

...Vital sign: Contains the vital sign data taken at specific intervals for a given patient.

**Hospital** : This contains identifying information for a particular **hospital** where the care is given.

**ICU** bed: Contains the association for identifying which beds are in a given **ICU** .

Command center/remote location definitions and modules have also been created for the present invention...

...patient.

Command center/remote location: Provides identifying information for a particular command center/remote location.

**Hospital** : Contains identifying information for a particular **hospital** wherein an **ICU** is located.

**ICU** : Contains identifying information for an **ICU** at a **hospital** .

I I **ICU** bed: Contains the, association for identifying which beds are in a given **hospital** .

**ICU** patient location: Provides the association between an **ICU** and a patient and identifies where a patient is located within an **ICU** in a particular **hospital** .

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The order entry functionality of the present invention provides a critical service for obtaining information on the patient during admission, medical orders, and procedures provided to the patient during the **ICU** stay. For example.

Radiology: Contains all radiology performed on a particular patient.

Radiology results: Contains...

...OF THE INVENTION

The present invention is a system and method for remote monitoring of **ICU** 's from a distant command center/remote location. By monitoring a plurality of **ICU** 's remotely, intensivists can better spread their expertise over more **ICU** beds that heretofore

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I achievable. The presence of 24-hour a day/7 day-per-week intensivist care dramatically decreases the mortality rates associated with **ICU** care.

Referring to Figures I and IA, the Billing and Demographic data structure of the...the patient ID stored in the demographic information 9010.

Patient's are entered into the **hospital** by a **hospital** representative 9006 who has a representative ID which also is ultimately associated with the patient...

...be associated ultimately with

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I treatment of the patient.

Each patient admitted to the **hospital** and to the **ICU** has a patient visit ID associated with the patient 9017. This visit ID has patient ID information, **ICU** information, admission date, and other information relevant to the specific visit. This information is illustrated...

...it.

Referring now to Figure 2A, the Command Center logical data structure illustration continues. Each **ICU** bed has an associated location ID which comprises **hospital** **ICU** information, room number, and bed number 9038. In addition, and as described earlier, instrumentation such...

...particular patient. Therefore the camera setting 9040 will have a location ID relating to the **ICU** bed

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I as well as have camera value settings and associated camera identifier information.

Each **ICU** bed 9038 is associated with an **ICU** 9032. Each **ICU** has information associated with it that uniquely identifies the **ICU** as being associated with the particular **hospital**, and having particular phone numbers, fax numbers, work space addresses, and other information, that help to identify the **ICU**.

As noted above, each **ICU** is associated with a **hospital** 9034. Each **hospital** has a unique identifier, as well as its own name, address, and other identifying information.

Further, since each **hospital** **ICU** is to be coordinated through a remote command center, information on the remote command center 9036 is associated with the **hospital** information. Each command center has a unique ID and has associated address I I information...



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...9010 is linked to a patient location 9030 which in turn is associated with an **ICU** bed 9038 each of which beds are uniquely associated an **ICU** 9032 which is associated with a **hospital** 9034 which in turn has the **ICU** managed by a command center 9036.

An integral part of the system of the present...ID for the particular patient. This header information comprises a date-time stamp combined with **hospital** information, medical reference numbers, and identification of the patient. Vital sign details 9122 are also...

...are illustrated. For example, a vital sign log header 9120 is created using the unique **hospital**

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I ID and medical record numbers. Other information such a patient name, and date...

...For example, blood pressure measurements, respiration, and other factors are all detailed for a particular **hospital** ID. It should be noted that all vital sign data is logged in and kept...

...as errors.

Vital sign error details 9126 are also recorded and associated with a particular **hospital** . Information and the vital sign error detail also comprises heart rate, blood pressure, and other...

...associated with a vital sign error I I header 9130 which is associated with the **hospital** identifier and the patient first and last name and other information. Various vital sign error...

...as noted above.

Care Net patient location 9132 is recorded and associated with a particular **hospital** ID and location ID for the particular patient. Carenet is a proprietary product designation of since it identifies the equipment from which measurements come. The **ICU** bed information 9038 is associated with the Care Net patient location 9132.

Referring to Figure...

...distributed architecture comprises a headquarters component 200, a command center/remote location 202, and a **hospital ICU** 204, which, while represented as a single **hospital** in this illustration, in the preferred embodiment comprises several **hospital ICUs** at different locations. The headquarters unit 200 comprises a database server and data warehouse...

...of a statistical nature that will assist clinicians and intensivists in treating patients in the **ICU** . The headquarters' function also serves to allow centralized creation of decision support algorithms and a...

...at the command center/remote location once all systems are up and running.

At the **hospital ICU** 204, each patient room 232, 234 has a series of bedside monitors and both video and audio monitoring of each patient in the patient room. Each **ICU** further has a nurse's station with a video camera and monitor 230 so that...

...I I those intensivists at the command center/remote location. The monitoring equipment at the **ICU** is served by a monitor server 236, which receives and coordinates the transmission of all bedside monitoring

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and nurses station communication with the command center/remote location. Finally, each **ICU** has a patient information front end 15228, which receives and transmits to...

...and with patients as the need arises. Information from the monitor server 236 at the **hospital ICU** is served to an HL7 (the language for transmitting **hospital** /patient/diagnostic data) gateway 214 to a database server 222. In this fashion, information from...

...center/remote location personnel to monitor the incoming data from the patient rooms in the **ICU**. Information from the patient information front end 228 is provided to an application server 224...

...and assembling information in the database 222 that is associated with individual patients in the **ICU**.

It is expected that there will be a great deal of concurrent **hospital** data that is necessary to the implementation of the present invention. It is therefore expected...

...server and other components are such as routers and switches are commonly used in the **ICU**, the command center/remote location, and the headquarters. For example.

The Cisco 3600 router is...

...the same device. This is necessary, since the various command center/remote locations, headquarters, and **intensive care** units all must integrate and transmit video, audio, and data among the various entities.

The...system 268 monitors the overall health of the network of command center/remote locations and **intensive care** units as well as the functionality of the individual pieces of equipment within...

...260 allows for point to point communication over a TI line, with a plurality of **intensive care** units located remotely from the command center/remote location. Hot phones 252 and 254 allow communication with the headquarters and the **intensive care** unit.

**Intensive care** unit 204 comprises a Cisco 2924 switch 272 for the purpose of interfacing with the...

...the workstation 280 provides for textual advice and patient orders to be delivered to the **intensive care** unit for execution. The **intensive care** unit also comprises a laser printer 284 for the printing of patient orders and other information relevant to the care of **intensive care** patients.

Referring to Figure 11, the videoconferencing/surveillance/imaging components of the present invention are illustrated. The **hospital ICU** 204 comprises a series of video cameras 290, which are located in patient rooms and...

...for imaging emanating from the workstation at the command center/remote location 252 through the **ICU** workstation 280 through a multi-port serial controller 286. Video feed from the video cameras...

...care. It is also important that information of an audio nature be fed to the **intensive care** unit, both to the patient rooms and to the nurse's station. To do this...

...from a video codec 304, which in turn is connected to the workstation at

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the ICU . As noted earlier, a I I scanner 282 is provided, so that information can be...

...to Figure 12 the vital signs data flow is illustrated. The monitoring system at each ICU bedside comprises a monitoring system for monitoring the vital signs for the patient. The vital...

...transmits that vital sign data 454 using the HL7 language (the standard processing language for hospital data and information). The processor at the ICU processes the vital sign data for transmission and storage purposes and transmits that information to...

...only the individual patient but from all of the patients being cared for in the ICU . This database warehouse provides the ability to do

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I data mining for trends that...

...to the remote site, the vital sign data is displayed in real time at the ICU 472.

Referring to Figure 13(a) the diagnostic imaging interaction is illustrated. X-rays for...is illustrated. A video conferencing session is established 478 regarding a particular patient in an ICU bed.

I I Using the video cameras in each room and/or at the nurses station at the ICU , the patient and/or the nurse can be viewed 480. On the other end of...

...the Apache 11 score is less than eight, the patient is triaged to a none ICU bed 518 since the patient will not necessarily require intensive care thereby saving relatively scarce resources of the ICU for those who are truly critically ill.

Referring to Figure 16 the automated coding/billing...600 allows the intensivist to order procedures and medication to assist the patients in the ICU . For example, the intensivist can order an ECG 604. Thereafter the order is reviewed and...

...system 610.

Thereafter the data output system prints the order to the printer in the ICU 616. For record keeping purposes the order is exported in the HL7 language to the hospital data system 618. In addition the data output system adds an item to the data...

...is provided to the data output system 610 where again the orders are printed for ICU and 616 and for the hospital data system. In this case, any medications that are ordered are then provided to the...

...614 so that the complete list of all medications that are being administered to the ICU patient is current.  
Referring to Figure 18 the event log is illustrated. The database 620...

...manner of notes and data relating to the particular patient that is admitted to the ICU . For example, admission notes 622 are taken upon admission of the patient and stored in...

...specific to that patient. Progress notes 624 are created during the patients stay within the ICU to note the progress the patient is making giving the various treatments.

Procedural notes 626...

...in a single location key clinical information from throughout a patients stay in the **ICU**. The event log user interface provides caregivers with a snapshot view of all salient events...

...per minute. In contrast, patients with known coronary I I artery disease in a surgical **ICU** have alarms set to detect either an absolute heart rate of 95 beats per minute...data output system 656. The procedural note is then printed on the printer in the **ICU** 658 and is exported in HL7 language to the **hospital** data system 660. In addition, this also triggers a billing event and the data output...  
...of practice standards can be accessed at the command center/remote location or at the **ICU** to assist in the treatment of the patient. Thus, the general categories of cardiovascular, endocrinology...

...NECROTIZING SOFT TISSUE INFECTIONS

NON-INFECTIOUS CAUSES OF FEVER

OPHTHALMIC INFECTIONS

PNEUMONIA, COMMUNITY ACQUIRED

PNEUMONIA, **HOSPITAL** ACQUIRED

SEPTIC SHOCK

SINUSITIS

SIRS

TRANSPLANT INFECTION PROPHYLAXIS

TRANSPLANT-RELATED INFECTIONS

NEUROLOGY

AGITATION, ANXIETY, DEPRESSION...to determine whether the patient has any of seven (7) risk factors, specifically: 1) Prolonged **intensive care** unit ( **ICU** ) stay (defined as greater than six (6) days); 2) recent surgery (particularly aortic cross clamp...eight, the intensivist is prompted by the system to consider removing the patient from the **Intensive Care** Unit 1606. However, if the patient has a Ranson Criteria greater than three or an...intervention is illustrated. The ventilator weaning decision support algorithm is used to determine whether an **intensive care** unit patient can return to breathing unassisted, and discontinue use of a ventilator. Such a...video/audio conferencing workstation located locally to the patient's room/residence (e.g. the **hospital** ward the patient resides in).

RVPs will attempt to initiate or join a video/audio conference...

...50% improvement in severity adjusted mortality, 40% improvement in clinical complication rates, 30% improvement in **ICU** length of stay, and 30% improvement in overall **ICU** cost of care.

A system and method of remote monitoring of **ICU** 's and other healthcare locations has been shown. It will be apparent to those skilled...

...as disclosed. For example, one can envision different ratios of command center/remote location to **ICU** 's, other decision support algorithms that would be used by intensivists, other types of remote monitoring of not only **ICU** 's but other types of **hospital** functions as well as industrial functions where critical expertise is in limited supply but where...

Claim

... health care services from a remote location of claim I wherein the healthcare locations comprise **intensive care** units (ICUS).

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7 The system for providing continuous, expert network health care services from...

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...Penetrating Chest Injury, Penicillin Allergy, Penicillin Allergy,  
Permanent Pacemaker and Indications, Pneumonia Community Acquired,  
Pneumonia **Hospital** Acquired, Post-Op Bleeding, Post-Op Hypertension,  
Post-Op Hypertension , Post-Op Management of Abdominal continuous expert  
**critical care** comprising:  
monitoring patients in a plurality of **ICU** 's;  
communicating the information from the patient monitoring to at least one  
command  
center over...

...over the first network; and  
providing guidance from the command center to the plurality of **ICU** 's to  
take actions regarding patient care.

13 The method for providing continuous expert **critical care** of claim  
12 wherein the providing guidance from the command center further  
comprises an intensivist reviewing decision support algorithms that  
provide guidance for treating a plurality of **critical care**  
conditions.

14 The method for providing continuous expert **critical care** of claim  
13 wherein the decision support algorithms are taken from the group  
consisting of...

...Penetrating Chest Injury, Penicillin Allergy, Penicillin Allergy,  
Permanent Pacemaker and Indications, Pneumonia Community Acquired,  
Pneumonia **Hospital** Acquired, Post-Op Bleeding, Post-Op Hypertension,  
Post-Op Hypertension , Post-Op Management of Abdominal...

...Arrhythmia, Warfarin, Warfarin Dosing, and Wound Healing Strategies.

15 The method for providing continuous expert **critical care** of claim  
13 further comprising a data server/ data warehouse storing and analyzing  
patient data...

...ID: ID  
PIN NUMBER:<UNKNOWN> HOSP DISCHAF  
LAST NAME: PERSON NAME PATIENT ID: ID (FK) **ICU** DISCHARG  
FIRST NAME: PERSON NAME REP ID: ID (FK) DATE ENTEREI  
MIDDLE INITIAL: STRING PATIENT STATL  
cn CREDENTIALS: CODE REP ROLE ID: ID **ICU** ADMIN DAT  
c  
co PHYSICIAN UPIN: STRING HOSPADMIN D  
cn  
i SSN: STRING MEDICAL RECC  
SOURCE ID: ID  
m HOSP DISCHAF  
cn 9010  
m DEMOGRAPHIC HOSP DISCHAF  
m  
m **ICU** DISCHARG  
i  
PATIENT ID: ID **ICU** DISCHARG  
c READMIT FLAC  
r@ LAST NAME: PERSON NAME  
m  
FIRST NAME: PERSON NAME  
MIDDLE...  
...VALUE: STRING HOME AREA CODE: AREA CODE VISIT ID: ID  
MARITAL STATUS ID: ID 9034  
**ICU** r-ol **HOSPITAL** r--41 COMMAN  
**HOSPITAL** **ICU** ID: ID **HOSPITAL** ID: ID COMMA

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**HOSPITAL** ID: ID (FK) COMMAND CENTER ID: ID (FK) COMMA  
PHONE NUMBER: PHONE NUMBER **HOSPITAL** NUMBER: NUMBER ADDRE."  
FAX NUMBER: PHONE NUMBER **HOSPITAL** NAME: NAME ADDRE.1  
**ICU** WARD ID: ID ADDRESS LINE 2: ADDRESS CITY: N/  
cn AREA CODE: AREA CODE ADDRESS...

...ADDRESS: STRING CITY: NAME ZIP Coc

a  
VS LISTENER: STRING STATE ID: ID ZIP Coc  
**ICU** PRINTER NAME: NAME ZIP CODE EXTENSION: ZIP CODE  
c  
I ZIP CODE: ZIP CODE  
m  
cn  
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c  
m  
**ICU** BED 9038  
roll CAMERA SETTING  
IOC ID: ID IOC ID: ID (FK)  
..... **HOSPITAL** **ICU** ID: ID (FK) CAMERA VALUE W  
ROOM NUMBER\* STRING CAMERA VALUE: STI  
BED NUMBER: STRING...

...VISIT

VISIT ID: ID  
PATIENT ID: ID (FK) 9042 MEDICA  
HOSP DISCHARGE FLAG: FLAG NOTE  
**ICU** DISCHARGE FLAG: FLAG MEDI(  
DATE ENTERED: DATE TIME NOTE ID: ID  
PATIENT STATUS ID: ID NOTE  
cn **ICU** ADMIN DATE: DATE TIME ..... VISIT ID: ID (FK)  
c MEDI(  
co HOSP ADMIN DATE: DATE...

...m HOSP DISCHARGE DATE: DATE TIME MEDI(  
co

m HOSP DISCHARGE ID: ID  
m  
m **ICU** DISCHARGE DATE: DATE TIME  
q  
**ICU** DISCHARGE ID: ID  
X  
c READMIT FLAG: ID  
m  
PHYISCIAN- PHYSICIAN EXTENDER  
REP ID: ID...

...ID (FK) CATHETER ID: ID NOTE ID: ID (F

HOSP DISCHARGE FLAG: FLAG COMMENTS: DESCRIPTION  
**ICU** DISCHARGE FLAG: FLAG INSERT DATE: DATE TIME REVIEW OF S'  
cn DATE ENTERED: DATE TIME...

...DATE TIME

c PATIENT STATUS ID: ID REMOVE DATE: DATE TIME PATIENT ILLNESS  
co  
cn **ICU** ADMIT DATE: DATE TIME  
i HOSP ADMIT DATE: DATE TIME NOTE ID: ID (FK)  
=i...

...FREE T

# Search Report from Ginger D. Roberts

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cn HOSP DISCHARGE DATE: DATE TIME
m HOSP DISCHARGE ID: ID
m
i ICU DISCHARGE DATE: DATE TIME
.....
X ICU DISCHARGE ID: ID
c
r@ READMIT FLAG: ID
m 9054
SURGERY
SURGICAL FLUIDS NOTE ID...

...ORDERS ORDER ID: ID
C HOSP DISCHARGE FLAG: FLAG ORDER ID: ID NDDFDRUG(
co
cn ICU DISCHARGE FLAG: FLAG VISIT ID: ID (FK) ORDER ACTI(
i
=i DATE ENTERED: DATE TIME...

...DOSAC
Si PATIENT STATUS ID: ID ORDER SET TYPE ID: ID DOSAGE UN17
m
cn ICU ADMIT DATE: DATE TIME DATE ORDERED: DATE TIME LOAD DOSAG
11 HOSP ADMIT DATE: DATE...

...ROUTE ADMII
rc: HOSP DISCHARGE DATE: DATE TIME FREQUENCY
m HOSP DISCHARGE ID: ID FREQUENCY
ICU DISCHARGE DATE: DATE TIME FREQUENCY
ICU DISCHARGE ID: ID STOP DATE: I
READMIT FLAG: ID STOP DOSAG
PHYSICIAN- PHYSICIAN EXTENDER SLIDE...i LABORATORY
c PATIENT ID: ID (FK
--i HOSP DISCHARGE FLAG: FLAG
m LABID:ID ICU DISCHARGE FLAG: FLAG
cn
m VISIT ID: ID (FK) . . . . .DATE ENTERED: DATE TIME
m SPECIMEN ID: I'D PATIENT STATUS ID: ID
m
i DATE LAB TAKEN: DATE TIME ICU ADMIT DATE: DATE TIME MICROBIO
LAB CODE: ID HOSP ADMIT DATE: DATE TIME
c LAB...

...11
HOSP DISCHARGE DATE: DATE TIME SITE ID: 11
HOSP DISCHARGE ID: ID DATE TAK
ICU DISCHARGE DATE: DATE TIME IDENTIF
ICU DISCHARGE ID: ID
IREADMIT FLAG: ID
9102
. . . . .
OTHER LAB
OTHER ID: ID
LAB ID: ID...

...ID: ID
PATIENT ID: IDIFK) 9122 VITAL SIGI`
HOSP DISCHARGE FLAG: FLAG VISIT ID: I
ICU DISCHARGE FLAG: FLAG STAMP D'
DATE ENTERED: DATE TIME
PATIENT STATUS ID: ID VITAL SIGN HEADER 9120 HOSPITAI
ICU ADMIT DATE: DATE TIME PATIENT I
HOSP ADMIT DATE: DATE TIME VISIT ID: ID MEDICAL

```

Search Report from Ginger D. Roberts

cn MEDICAL RECORD NUMBER: STRING STAMP DTM: DATE TIME OBS DTM  
cco SOURCE ID: ID **HOSPITAL** ID: ID (FK) SENDING  
cn HOSP DISCHARGE DATE: DATE TIME PATIENT ID: ID MSG CTIL  
HOSP DISCHARGE ID: ID HEART R  
-4 MEDICAL REC NUMBER: STRING  
c **ICU** DISCHARGE DATE: DATE TIME PATIENT NAME: PERSON NAME SYSTEM11  
ml **ICU** DISCHARGE ID: ID PATIENT LAST NAME: PERSON NAME SYTEMIC  
cn RE-ADMIT FLAG: ID PATIENT...

...ID: ID 9034 ET C02: @  
LAST NAME: PERSON NAME CO: NUM[  
FIRST NAME: PERSON NAME **HOSPITAL** ST 1: NUN  
MIDDLE INITIAL: STRING **HOSPITAL** ID: ID ST 2: NUN  
GENDER ID: ID COMMAND CENTER ID: ID WK) ST 3: NUN  
DATE OF BIRTH: DATE TIME I  
ETHNIC ID: ID **HOSPITAL** NUMBER: NUMB R  
SSN: STRING **HOSPITAL** NAME: NAME  
ADDRESS LINE 2: ADDRESS  
COUNTRY ID: ID ADDRESS LINE 1: ADDRESS  
HOME PHONE...

...ID: ID ZIP CODE EXTENSION: ZIP CODE VITAL SIGN LOG HEADER  
VITAL SIGN LOG DETAIL  
**HOSPITAL** ID: ID  
**HOSPITAL** 10: ID (FK 9124 MEDICAL REC NUMBER: STRING  
MEDICAL REC NUNER: STRING (FK) STAMP DTM...

...NUMBER  
c  
RESPIRATION: NUMBER VITAL SIGN ERROR DETAIL@  
PA SYSTOLIC: NUMBER  
CT PA DIASTOLIC: NUMBER **HOSPITAL** ID: ID (FK  
m PA MEAN: NUMBER MEDICAL REC NAER: STRING (FK)  
PAOP: NUMBER STAMP...

...SYSTEMIC DIASTOLIC: NUMBER  
SYSTEMIC MEAN: NUMBER  
TEMPERATURE: NUMBER  
9038 SA02: NUMBER  
RESPIRATION: NUMBER  
CARENETPATIENTLOCATION ,e9132 **ICU** BED PA SYSTOLIC: NUMBER  
PA DIASTOLIC: NUMBER  
**HOSPITAL** 11): ID LOCL ID: ID (FK) PA MEAN: NUMBER  
CARENET NUM: STRING PAOP: NUMBER  
CARENET BED NUM: STRING - - - - - **HOSPITAL** **ICU** ID: ID CVP: NUMBER  
LOCL ID: ID (FK) ROOM NUMBER: STRING ET C02: NUMBER  
..... BED NUMBER: STRING CO:NUMBER  
STI:NUMBER  
ST 2: NUMBER  
ST 3: NUMBER  
204 **HOSPITAL** DISTRIBUTED ARG1  
NURSING STATION PATIENT ROOMS  
232  
230 BEDSIDE MONITORS BEDSIDE MONITORS  
at t@t...250  
ARGUS PHONE 278[  
A TERPRI'  
EN  
FiGm 1 0  
VIDEO CONFERENCING/ SURVEILLANCE/ IMAGING COMPONENTS  
**HOSPITAL**  
286



Search Report from Ginger D. Roberts

RS-422 SERIAL PORT RSA22 IN RS 232  
280 RS-232 PORT L  
MULTIPORT...

...SCORE < 8

534  
PAST MEDICAL 520 518  
HISTORY CONTINU WITH PATIENT TRIAGED  
DIAGNOSTIC TO NON- ICU BED  
536-,  
ALGORITHM  
DEMOGRAPHICS \*ASSIGNS APACHE 11  
SCORE BASED UPON  
WEIGHTED COMPOSITE  
OF 25 VARIABLES...

...FMR

SYSTEM UPDATES MEDICATION LIST  
PRINTS EXPORTS INFO  
ORDERS IN HL.7  
PRINTER IN 6 HOSPITAL DATA 618  
( ICU ) SYSTEMS FIGm 1 7  
EVENT LOG  
ADMISSION DX ADMISSIO  
OPERATIONS  
PERFORMED  
cn SELECT DXS & RXS...OUTPUT  
SYSTEM  
LINE LOG UPDATED  
/ x  
658 PRINT EXPOR  
NOTE IN IrIL7 662  
660  
PRINTER HOSPITAL DATA BILLING MODULE BILL GENERAI  
(IN ICU ) SYSTEMS I  
THE LINE LOG CONTAINS, FOR EACH PATIENT, RELEVANT INFORMATION ABOUT ALL  
INDWELLIN TYPE...

...NO HE PATIENT HAVE ANY OF THE 804

FOLLOWING RISK FACTORES? PROBABLY NOT  
1) PROLONGED ICU STAY (> 6 DAYS) ACALCULOUS  
2) RECENT SURGERY (PARTICULARLY CH LECYSTITIS.  
808 AORTIC CROSS CLAMP PROCEDURES...EITH NO PRENANCY)  
RITERIA > 3 OR APAC  
11 SCORE > 8? LCONSIDER SUPPORTIVE  
CARE IN NON ICU 1606  
1607 ENVIRONMENT  
1608  
FORM ES CONSIDER ERCP TO  
WITHIN 24 HOUR nrATP k REMOVE...

?

show files;ds  
File 350:Derwent WPIX 1963-2003/UD,UM &UP=200307  
(c) 2003 Thomson Derwent

Set	Items	Description
S1	1235	TELEMEDICINE? OR TELE()MEDICINE? OR TELEINFORMATIC? OR TEL- E()INFORMATIC? OR TELECONFERENC? OR TELEMATIC?
S2	12558	COMMAND(2W)(CENTER? OR CENTRE?) OR CENTRALI?
S3	5	S1 AND S2
S4	3	S1 AND (DSS OR DECISION()SUPPORT OR EXPERT()SYSTEM? OR KNO- WLEDGEBASE?)

?t4/4/all

#### 4/4/1

DIALOG(R)File 350:Derwent WPIX  
(c) 2003 Thomson Derwent. All rts. reserv.

IM- \*Image available\*  
AA- 2002-516586/200255|  
TI- **Telemedicine** method and system|  
PA- HAN M C (HANM-I); SUK M S (SUKM-I)|  
AU- <INVENTORS> HAN M C; SUK M S|  
NC- 001|  
NP- 001|  
PN- KR 2002009302 A 20020201 KR 200042922 A 20000725 200255 B|  
AN- <LOCAL> KR 200042922 A 20000725|  
AN- <PR> KR 200042922 A 20000725|  
LA- KR 2002009302(1)|  
AB- <PN> KR 2002009302 A|  
AB- <NV> NOVELTY - A **telemedicine** method and system are provided to  
remotely examine a patient without a doctor or expensive remote  
examination equipment by a PC(Personal Computer) and a communications  
network.|  
AB- <BASIC> DETAILED DESCRIPTION - The method comprises steps of a service  
provider accepting a client(s101) in a remote place as a member and  
connecting an examination tool embedding examination software and  
sensor to a computer, performing an examination according to the  
directions of the software, converting the examination data into a  
file, transmitting the data to an unmanned web server(s102) in a remote  
place, storing the basic examination data in an automatic classifying  
database server(s103) according to the type of the member and the  
examined part, a data server(s105) automatically classifying and  
deciding based on the examination data by data-processing via a  
computer of an **expert system** (s104), sending e-mail including a  
prescription, a method and medical information based on the examination  
data and physical data, and automatically displaying the corresponding  
result on a web page.  
pp; 1 DwgNo 1/10|  
DE- <TITLE TERMS> METHOD; SYSTEM|  
DC- T01|  
IC- <MAIN> G06F-017/60|  
MC- <EPI> T01-J05A|  
FS- EPI||

#### 4/4/2

DIALOG(R)File 350:Derwent WPIX  
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IM- \*Image available\*  
AA- 2000-571039/200053|  
XR- <XRPX> N00-422371|

TI- Memory control system for maintaining working memory used in connection with **expert system** |

PA- AT & T CORP (AMTT ) |

AU- <INVENTORS> AUER P; GRIZMALA F; LERNER M; MASHER H H; SPOREL E R |

NC- 001 |

NP- 001 |

PN- US 6067637 A 20000523 US 97857987 A 19970516 200053 B |

AN- <LOCAL> US 97857987 A 19970516 |

AN- <PR> US 97857987 A 19970516 |

LA- US 6067637(18) |

AB- <PN> US 6067637 A |

AB- <NV> NOVELTY - The memory control system has a storage device comprising a working memory used in connection with an **expert system**. The data potentially relevant to the operation of the **expert system** are filtered by event triggers each comprising a match portion and an action portion. |

AB- <BASIC> DETAILED DESCRIPTION - A processor compares the match portion of at least one of the event triggers to the potentially relevant data, and executes the action portion of any event trigger whose match portion matches the potentially relevant data. The execution of the action portion entails modifying the working memory. INDEPENDENT CLAIMS are also included for the following:

- (a) an **expert system** ;
- (b) a maintaining method of working memory;
- (c) and a system for modifying data stored in a working memory.

USE - For maintaining working memory used in connection with **expert system** for remotely controlling e.g. windows, GUIs, **teleconferencing** services and monitoring. For pre-filtering data and storing data for more efficient implementation in **expert system**.

ADVANTAGE - Raises efficiency of **expert system** by maintaining a working memory storing only relevant data.

DESCRIPTION OF DRAWING(S) - The figure shows a functional block diagram of an **expert system**.

pp; 18 DwgNo 2/2 |

DE- <TITLE TERMS> MEMORY; CONTROL; SYSTEM; MAINTAIN; WORK; MEMORY; CONNECT; EXPERT; SYSTEM |

DC- T01; W02 |

IC- <MAIN> G06F-011/30 |

MC- <EPI> T01-H05B1; T01-H07C3D; T01-J12B1; T01-J16A; W02-F08A3 |

FS- EPI | |

4/4/3

DIALOG(R)File 350:Derwent WPIX  
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AA- 2000-376045/200032 |

XR- <XRPX> N00-282451 |

TI- Diagnosing a visual disorder in a patient based on an **expert system** by performing visual field test on a visual field analyzer for diagnosis of patient and interpretation of results of diagnostic visual field test by computer |

PA- ORINCON CORP (ORIN-N); VIRTUAL-EYE.COM INC (VIRT-N) |

AU- <INVENTORS> MASSENGILL R K; MCCLURE R J; WROBLEWSKI D |

NC- 022 |

NP- 002 |

PN- WO 200025667 A1 20000511 WO 99US25598 A 19991101 200032 B |

PN- US 6145991 A 20001114 US 98106648 A 19981102 200060

<AN> US 99430863 A 19991101 |

AN- <LOCAL> WO 99US25598 A 19991101; US 98106648 A 19981102; US 99430863 A 19991101 |

AN- <PR> US 98106648 P 19981102; US 99430863 A 19991101 |

Search Report from Ginger D. Roberts

FD- WO 200025667 A1 A61B-005/00  
<DS> (National): CA IL JP  
<DS> (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
FD- US 6145991 A A61B-003/00 Provisional application US 98106648  
LA- WO 200025667(E<PG> 12)  
DS- <NATIONAL> CA IL JP  
DS- <REGIONAL> AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC;  
NL; PT; SE  
AB- <PN> WO 200025667 A1  
AB- <NV> NOVELTY - Visual field tests are interpreted by at least three  
practitioners licensed to perform visual field test interpretation.  
Results of the interpretations of the visual field test codification  
provide a set of interpretive rules to establish a protocol for  
interpreting visual field test results.  
AB- <BASIC> DETAILED DESCRIPTION - A computer is programmed to perform the  
protocol of a visual field test on a visual field analyzer for  
diagnosis of a patient and interpretation of results of the diagnostic  
visual field test by the computer performing the protocol. An  
INDEPENDENT CLAIM is included for:  
(a) a system for diagnosing a visual disorder in patient  
USE - For gathering and interpreting data on a visual field of a  
patient, and making clinical diagnoses.  
ADVANTAGE - The use of this rule-based **expert system** allows  
visual performance monitoring and auto-interpretation with greatly  
increased accuracy. By incorporating the **tele - medicine** component of  
this invention, visual field performance and auto-interpretation can  
readily become a reality on a world-wide basis.  
pp; 12 DwgNo 0/01  
DE- <TITLE TERMS> DIAGNOSE; VISUAL; DISORDER; PATIENT; BASED; EXPERT;  
SYSTEM; PERFORMANCE; VISUAL; FIELD; TEST; VISUAL; FIELD; DIAGNOSE;  
PATIENT; INTERPRETATION; RESULT; DIAGNOSE; VISUAL; FIELD; TEST;  
COMPUTER  
DC- P31; S05; T06  
IC- <MAIN> A61B-003/00; A61B-005/00  
MC- <EPI> S05-D05; S05-D06; T06-A05A  
FS- EPI; EngPI  
?